

1, COLORADO AIR QUALITY CONTROL  
SOLID WASTE / HAZARDOUS MATERIALS REGULATIONS

1 6CCR 1007-3, PART 261

2 4 HAZARDOUS MATERIALS AND SOLID WASTE REGULATIONS 1007  
PART 261 - IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

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**Subpart A - General**

**§ 261 1 Purpose and scope**

(a) This part identifies those solid wastes which are subject to regulation as hazardous wastes under Parts 262 through 268 and Part 100 and which are subject to the notification requirements of Part 99. In this part

(1) Subpart A defines the terms "solid waste" and "hazardous waste," identifies those wastes which are excluded from regulation under Parts 262 through 268, 99 and Part 100 and establishes special management requirements for hazardous waste produced by conditionally exempt small quantity generators and hazardous waste which is recycled

(2) Subpart B sets forth the criteria used by the Department to identify characteristics of hazardous waste and to list particular hazardous wastes

(3) Subpart C identifies characteristics of hazardous waste

(4) Subpart D lists particular hazardous wastes

(b)(1) The definition of solid waste contained in this Part applies only to wastes that also are hazardous. For example, it does not apply to materials (such as non-hazardous scrap, paper, textiles, or rubber) that are not otherwise hazardous wastes and that are recycled

(2) This Part identifies only some of the materials which are solid wastes and hazardous wastes under Sections 3007, 3013, and 7003 of RCRA. A material which is not identified or listed in this Part, is still a solid waste and a hazardous waste for purposes of these sections if

(i) In the case of Sections 3007 and 3013, EPA has reason to believe that the material may be a solid waste within the meaning of Section 1004(27) of RCRA and a hazardous waste within the meaning of Section 1004(5) of RCRA, or

(ii) In the case of Section 7003, the statutory elements are established.

(c) An attached statement of basis and purpose for these regulations has been adopted by the Board of Health and is hereby incorporated by reference in these regulations pursuant to C R S 1973, 24-4-103

(d) For the purposes of §§ 261 2 and 261 6

(1) A "spent material" is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing,

(2) "Sludge" has the same meaning used in § 260 10 of these regulations,

(3) A "by-product" is a material that is not one of the primary products of a production process

and is not solely or separately produced by the production process. Examples are process residues such as slags or distillation column bottoms. The term does not include a co-product that is produced for the general public's use and is ordinarily used in the form it is produced by the process.

(4) A material is "reclaimed" if it is processed to recover a useable product, or if it is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents.

(5) A material is "used or reused" if it is either

(i) Employed as an ingredient (including use as an intermediate) in an industrial process to make a product (for example, distillation bottoms from one process used as feedstock in another process). However, a material will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal-containing secondary materials), or

(ii) Employed in a particular function or application as an effective substitute for a commercial product (for example, spent pickle liquor used as phosphorous precipitant and sludge conditioner in wastewater treatment).

(6) "Scrap metal" is bits and pieces of metal parts (e.g., bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled.

(7) A material is "recycled" if it is used, reused, or reclaimed.

(8) A material is "accumulated speculatively" if it is accumulated before recycled. A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled, and that -- during the calendar year (commencing on January 1) -- the amount of material that is recycled, or transferred to a different site for recycling, equals at least 75% by weight or volume of the amount of that material accumulated at the beginning of the period. In calculating the percentage of turnover, the 75% requirement is to be applied to each material of the same type (e.g., slags from a single smelting process) that is recycled in the same way (i.e., from which the same material is recovered or that is used in the same way). Materials accumulating in units that would be exempt from regulation under § 261.4(c) are not to be included in making the calculation. (Materials that are already defined as solid wastes also are not to be included in making the calculation.) Materials are no longer in this category once they are removed from accumulation for recycling, however.

(9) "Excluded scrap metal" is processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal.

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(10) "Processed scrap metal" is scrap metal which has been manually or physically altered to either separate it into distinct materials to enhance economic value or to improve the handling of materials. Processed scrap metal includes, but is not limited to scrap metal which has been baled, shredded, sheared, chopped, crushed, flattened, cut, melted, or separated by metal type (i.e., sorted), and, fines, drosses and related materials which have been agglomerated.

(Note shredded circuit boards being sent for recycling are not considered processed scrap metal. They are covered under the exclusion from the definition of solid waste for shredded circuit boards being recycled (§ 261 4(a)(15)).

(11) "Home scrap metal" is scrap metal as generated by steel mills, foundries, and refineries such as turnings, cuttings, punchings, and borings.

(12) "Prompt scrap metal" is scrap metal as generated by the metal working/fabrication industries and includes such scrap metal as turnings, cuttings, punchings, and borings. Prompt scrap is also known as industrial or new scrap metal.

**§ 261 2**

**§ 261 2 Definition of solid waste**

(a)(1) A solid waste is any discarded material that is not excluded by § 261 4(a) or that is not excluded by variance granted under § 260 30 and § 260 31

(2) A discarded material is any material which is

(i) Abandoned, as explained in paragraph (b) of this section, or

(ii) Recycled, as explained in paragraph (c) of this section, or

(iii) Considered inherently waste-like, as explained in paragraph (d) of this section

(b) Materials are solid waste if they are abandoned by being

(1) Disposed of, or

(2) Burned or incinerated, or

(3) Accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated

(c) Materials are solid wastes if they are recycled -- or accumulated, stored, or treated before recycling -- as specified in paragraphs (c)(1) through (c)(4) of this section

(1) **Used in a manner constituting disposal**

(i) Materials noted with a "\*" in Column 1 of Table I are solid waste when they are

(A) Applied to or placed on the land in a manner that constitutes disposal, or

(B) Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (in which cases the product itself remains a solid waste)

(ii) However, commercial chemical products listed in § 261 33 are not solid wastes if they are applied to the land and that is their ordinary manner of use

(2) **Burning for energy recovery**

(i) Materials noted with a "\*" in column 2 of Table 1 are solid wastes when they are

(A) Burned to recover energy,

(B) Used to produce a fuel or are otherwise contained in fuels (in which cases the fuel itself remains a solid waste)

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(11) However, commercial chemical products listed in § 261.33 are not solid wastes if they are themselves fuels

(3) **Reclaimed** Materials noted with a "\*" in column 3 of Table 1 are solid wastes when reclaimed (except as provided under § 261.4(a)(17) of these regulations) Materials noted with a "---" in column 3 of Table 1 are not solid wastes when reclaimed

(4) **Accumulated speculatively** Materials noted with a "\*" in column 4 of Table 1 are solid wastes when accumulated speculatively

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Table 1

	Use constituting disposal (§ 261 2(c)(1))	Energy recovery/fuel (§ 261 2(c)(2))	Reclamation (§ 261 2(c)(3)) (except as provided in 261 4(a)(17) for mineral processing wastes)	Speculative accumulation (§ 261 2(c)(4))
	(1)	(2)	(3)	(4)
Spent Materials	(*)	(*)	(*)	(*)
Sludges (listed in § 261 31 or § 261 32)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	(---)	(*)
By-products (listed in § 261 31 or § 261 32)	(*)	(*)	(*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	(---)	(*)
Commercial chemical products listed in § 261 33	(*)	(*)	(---)	(---)
Scrap metal other than excluded scrap metal (see § 261 1(c)(9))	(*)	(*)	(*)	(*)

Note The terms "spent materials", "sludges", "by-products", "scrap metal", and "processed scrap metal" are defined in § 261 1



(d) **Inherently waste-like materials** The following materials are solid wastes when they are recycled in any manner

(1) Hazardous Waste Nos F020, F021 (unless used as an ingredient to make a product at the site of generation), F022, F023, F026, and F028

(2) The Department will use the following criteria to add wastes to that list

(i)(A) The materials are ordinarily disposed of, burned, or incinerated, or

(B) The materials contain toxic constituents listed in Appendix VIII of Part 261 and these constituents are not ordinarily found in raw materials or products for which the materials substitute (or are found in raw materials or products in smaller concentrations) and are not used or reused during the recycling process, and

(ii) The material may pose a substantial hazard to human health and the environment when recycled

(e) **Materials that are not solid waste when recycled**

(1) Materials are not solid wastes when they can be shown to be recycled by being

(i) Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed, or

(ii) Used or reused as effective substitutes for commercial products, or

(iii) Returned to the original process from which they are generated, without first being reclaimed or land disposed. The material must be returned as a substitute for feedstock materials. In cases where the original process to which the material is returned is a secondary process, the materials must be managed such that there is no placement on the land. In cases where the materials are generated and reclaimed within the primary mineral processing industry, the conditions of the exclusion found at § 261.4(a)(17) apply rather than this paragraph

(2) The following materials are solid wastes, even if the recycling involves use, reuse, or return to the original process (described in paragraphs (e)(1)(i) through (iii) of this section

(i) Materials used in a manner constituting disposal, or used to produce products that are applied to the land, or

(ii) Materials burned for energy recovery, used to produce a fuel, or contained in fuels, or

(iii) Materials accumulated speculatively, or

(iv) Materials listed in paragraph (d)(1) of this section

**(f) Documentation of claims that materials are not solid wastes or are conditionally exempt from regulation** Respondents in actions to enforce regulations implementing Subtitle C of RCRA who raise a claim that a certain material is not a solid waste or is conditionally exempt from regulation, must demonstrate that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption. In doing so, they must provide appropriate documentation (such as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not a waste, or is exempt from regulation. In addition, owners or operators of facilities claiming that they actually are recycling materials must show that they have the necessary equipment to do so.

### § 261.3 Definition of hazardous waste

(a) A solid waste, as defined in § 261.2, is a hazardous waste if it has no commercial use or value and

(1) It is not excluded from regulation as a hazardous waste under § 261.4(b), and

(2) It meets any of the following criteria

(i) It exhibits any of the characteristics of hazardous waste identified in Subpart C of this part. However, any mixture of a waste from the extraction, beneficiation, and processing of ores and minerals excluded under § 261.4(b)(7) and any other solid waste exhibiting a characteristic of hazardous waste under Subpart C is a hazardous waste only if it exhibits a characteristic that would not have been exhibited by the excluded waste alone if such mixture had not occurred, or if it continues to exhibit any of the characteristics exhibited by the non-excluded wastes prior to mixture. Further, for the purposes of applying the Toxicity Characteristic to such mixtures, the mixture is also a hazardous waste if it exceeds the maximum concentration for any contaminant listed in table I to § 261.24 that would not have been exceeded by the excluded waste alone if the mixture had not occurred or if it continues to exceed the maximum concentration for any contaminant exceeded by the nonexempt waste prior to mixture.

(ii) It is listed in Subpart D and has not been excluded from the lists in Subpart D under §§ 260.20 and 260.22.

(iii) It is a mixture of a solid waste and a hazardous waste that is listed in Subpart D of this part solely because it exhibits one or more of the characteristics of hazardous waste identified in Subpart C of this part, unless the resultant mixture no longer exhibits any characteristic of hazardous waste identified in Subpart C of this part, or unless the solid waste is excluded from regulation under § 261.4(b)(7) and the resultant mixture no longer exhibits any characteristic of hazardous waste identified in Subpart C of this part for

which the hazardous waste listed in Subpart D of this part was listed. (However,

nonwastewater mixtures are still subject to the requirements of Part 268 of these regulations, even if they no longer exhibit a characteristic at the point of land disposal)

(iv) It is a mixture of solid waste and one or more hazardous wastes listed in Subpart D and has not been excluded from this paragraph under §§ 260 20 and 260 22, however, the following mixtures of solid wastes and hazardous wastes listed in Subpart D are not hazardous wastes (except by application of paragraph (a)(2) (i) or (ii) of this Section) if the generator can demonstrate that the mixture consists of wastewater the discharge of which is subject to regulation under either Section 402 or Section 307(b) of the Clean Water Act (including wastewater at facilities which have eliminated the discharge of wastewater) and

(A) One or more of the following spent solvents listed in § 261 31 -- carbon tetrachloride, tetrachloroethylene, trichloroethylene -- provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pre-treatment system does not exceed 1 part per million, or

(B) One or more of the following spent solvents listed in § 261 31 -- methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents -- provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pre-treatment system does not exceed 25 parts per million, or

(C) One of the following wastes listed in § 261 32, provided that the wastes are discharged to the refinery oil recovery sewer before primary oil/water/solids separation -- heat exchanger bundle cleaning sludge from the petroleum refining industry (EPA Hazardous Waste No K050), crude oil storage tank sediment from petroleum refining operations (EPA Hazardous Waste No K169), clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations (EPA Hazardous Waste No K170), spent hydrotreating catalyst (EPA Hazardous Waste No K171), and spent hydrorefining catalyst (EPA Hazardous Waste No K172), or

(D) A discarded commercial chemical product, or chemical intermediate listed in § 261 33, arising from de minimis losses of these materials from manufacturing operations in which these materials are used as raw materials or are produced in the manufacturing process For purposes of this sub-paragraph, "de minimis" losses include those from normal material handling operations (e g spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials), minor leaks of process equipment, storage tanks or containers, leaks from well maintained pump packings

and seals, sample purgings, relief device discharges, discharges from safety showers

and rinsing and cleaning of personal safety equipment, and rinsate from empty containers or from containers that are rendered empty by that rinsing, or

(E) Wastewater resulting from laboratory operations containing toxic (T) wastes listed in Subpart D, provided that the annualized average flow of laboratory wastewater does not exceed one percent of total wastewater flow into the headworks of the facility's wastewater treatment or pre-treatment system, or provided the wastes, combined annualized average concentration does not exceed one part per million in the headworks of the facility's wastewater treatment or pretreatment facility Toxic (T) wastes used in laboratories that are demonstrated not to be discharged to wastewater are not to be included in this calculation, or

(F) One or more of the following wastes listed in § 261 32 -- wastewaters from the production of carbamates and carbamoyl oximes (EPA Hazardous Waste No K157)-- Provided that the maximum weekly usage of formaldehyde, methyl chloride, methylene chloride, and triethylamine (including all amounts that can not be demonstrated to be reacted in the process, destroyed through treatment, or is recovered, i e , what is discharged or volatilized) divided by the average weekly flow of process wastewater prior to any dilutions into the headworks of the facility's wastewater treatment system does not exceed a total of 5 parts per million by weight, or

(G) Wastewaters derived from the treatment of one or more of the following wastes listed in § 261 32 -- organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes (EPA Hazardous Waste No K156)--Provided, that the maximum concentration of formaldehyde, methyl chloride, methylene chloride, and triethylamine prior to any dilutions into the headworks of the facility's wastewater treatment system does not exceed a total of 5 milhgrams per liter

(v) **Rebuttable presumption for used oil** Used oil containing more than 1000 ppm total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in Subpart D of Part 261 of these regulations Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (for example, by using an analytical method from SW-846, Third Edition, to show that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in Appendix VIII of Part 261 of these regulations) EPA Publication SW-846, Third Edition, is available from the Government Printing Office, Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954 202-783-3238 (document number 955-001-00000-1) This document is also available for review at the Colorado Department of Public Health and Environment (See § 260 2(b)) and the State Publications Depository Libraries

(A) The rebuttable presumption does not apply to metalworking oils/fluids containing chlorinated paraffins, if they are processed, through a tolling agreement, to reclaim metalworking oils/fluids. The presumption does apply to metalworking oils/fluids if such oils/fluids are recycled in any other manner, or disposed.

(B) The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units where the CFCs are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with CFCs that have been mixed with used oil from sources other than refrigeration units.

(b) A solid waste which is not excluded from regulation under paragraph (a)(1) of this section becomes a hazardous waste when any of the following events occur:

(1) In the case of a waste listed in Subpart D, when the waste first meets the listing description set forth in Subpart D.

(2) In the case of a mixture of solid waste and one or more listed hazardous wastes, when a hazardous waste listed in Subpart D is first added to the solid waste.

(3) In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in Subpart C.

(c) Unless and until it meets the criteria of paragraph (d):

(1) A hazardous waste will remain a hazardous waste.

(2)(i) Except as otherwise provided in paragraph (c)(2)(ii) of this section, any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust, or leachate (but not including precipitation run-off) is a hazardous waste. (However, materials that are reclaimed from solid wastes and that are used beneficially are not solid wastes and hence are not hazardous wastes under this provision unless the reclaimed material is burned for energy recovery or used in a manner constituting disposal.)

(ii) The following solid wastes are not hazardous even though they are generated from the treatment, storage, or disposal of a hazardous waste, unless they exhibit one or more of the characteristics of hazardous waste:

(A) Waste pickle liquor sludge generated by lime stabilization of spent pickle liquor from the iron and steel industry (SIC Codes 331 and 332).

(B) Wastes from burning any of the materials exempted from regulation by § 261.6(a)(3)(iii) and (iv).

(C)(1) Nonwastewater residues, such as slag, resulting from high temperature metals recovery (HTMR) processing of K061, K062, or F006 waste, in units identified as rotary kilns, flame reactors, electric furnaces, plasma arc furnaces, slag reactors, rotary hearth furnace/electric furnace combinations or industrial furnaces (as defined in § 260.10), that are disposed in subtitle D units, provided that these residues meet the generic exclusion levels identified in the tables in this paragraph, for all constituents, and exhibit no characteristics of hazardous waste. Testing requirements must be incorporated in a facility's waste analysis plan or a generator's self-implementing waste analysis plan, at a minimum, composite samples of residues must be collected and analyzed quarterly and/or when the process or operation generating the waste changes. Persons claiming this exclusion will have the burden of proof that the material meets all of the exclusion requirements.

Constituent	Maximum for any single composite sample (mg/l)
Generic exclusion levels for K061 and K062 nonwastewater HTMR residues	
Antimony	0.10
Arsenic	0.50
Barium	7.6
Beryllium	0.010
Cadmium	0.050
Chromium (total)	0.33
Lead	0.15
Mercury	0.009
Nickel	1.0
Selenium	0.16
Silver	0.30
Thallium	0.020
Zinc	70
Generic exclusion levels for F006 nonwastewater HTMR residues	
Antimony	0.10
Arsenic	0.50
Barium	7.6
Beryllium	0.010
Cadmium	0.050
Chromium (total)	0.33
Cyanide (total)(mg/kg)	1.8
Lead	0.15
Mercury	0.009
Nickel	1.0
Selenium	0.16
Silver	0.30
Thallium	0.020
Zinc	70

(2) A one-time notification and certification must be placed in the facility's files and sent to the Department for K061, K062, or F006 HTMR residues that meet the generic exclusion levels for all constituents and do not exhibit any characteristics that are sent to subtitle D units. The notification and certification that is placed in the generator's or treater's files must be updated if the process or operation generating the waste changes and/or if the subtitle D unit receiving the waste changes. However, the generator or treater need only notify the Department on an annual basis if such changes occur. Such notification and certification should be sent to the Department by the end of the calendar year, but no later than December 31. The notification must include the following information: The name and address of the subtitle D unit receiving the waste shipments, the EPA Hazardous Waste Number(s) and treatability group(s) at the initial point of generation, and the treatment standards applicable to the waste at the initial point of generation. The certification must be signed by an authorized representative and must state as follows: "I certify under penalty of law that the generic exclusion levels for all constituents have been met without impermissible dilution and that no characteristic of hazardous waste is exhibited. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

(D) Biological treatment sludge from the treatment of one of the following wastes listed in § 261.32 -- organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes (EPA Hazardous Waste No. K156), and wastewaters from the production of carbamates and carbamoyl oximes (EPA Hazardous Waste No. K157)

(E) Catalyst inert support media separated from one of the following wastes listed in § 261.32 -- Spent hydrotreating catalyst (EPA Hazardous Waste No. K171), and Spent hydrotreating catalyst (EPA Hazardous Waste No. K172)

(d) Any solid waste described in paragraph (c) of this section is not a hazardous waste if it meets the following criteria:

(1) In the case of any solid waste, it does not exhibit any of the characteristics of hazardous waste identified in Subpart C of this part. (However, wastes that exhibit a characteristic at the point of generation may still be subject to the requirements of Part 268, even if they no longer exhibit a characteristic at the point of land disposal.)

(2) In the case of a waste which is a listed waste under Subpart D, contains a waste listed under Subpart D or is derived from a waste listed in Subpart D, it also has been excluded from paragraph (c) under §§ 260.20 and 260.22.

(e) Any material which would be a hazardous waste subject to the provisions of these regulations except for the fact that it has commercial use or value is subject to regulations pursuant to § 261.6 of these regulations.



#### § 261.4

(f) Notwithstanding paragraphs (a) through (d) of this section and provided the debris as defined in Part 268 of these regulations does not exhibit a characteristic identified at Subpart C of this part, the following materials are not subject to regulation under Parts 260, 261 to 267, 268, or 100

(1) Hazardous debris as defined in Part 268 of these regulations that has been treated using one of the required extraction or destruction technologies specified in Table 1 of § 268.45 of these regulations, persons claiming this exclusion in an enforcement action will have the burden of proving by clear and convincing evidence that the material meets all of the exclusion requirements, or

(2) Debris as defined in Part 268 of these regulations that the Director, considering the extent of contamination, has determined is no longer contaminated with hazardous waste

#### § 261.4 Exclusions

(a) **Materials which are not solid wastes** The following materials are not solid wastes for the purpose of this Part

(1)(i) Domestic sewage, and

(ii) Any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly-owned treatment works for treatment. "Domestic sewage" means untreated sanitary wastes that pass through a sewer system

(2) Industrial wastewater discharges that are point source discharges subject to regulation under Section 402 of the Clean Water Act, as amended

(3) Irrigation return flows

(4) Source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq

(5) Materials subjected to in-situ mining techniques which are not removed from the ground as part of the extraction process

(6) Inert materials deposited for construction fill or topsoil placement in connection with actual or contemplated construction at such location or for changes in land contour for agricultural and mining purposes, if such depositing does not fall within the definition of treatment, storage, or disposal of hazardous waste

(7) Pulping liquors (i.e., black liquor) that are reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, unless it is accumulated speculatively as defined in § 261.1(c) of these regulations,

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(8) Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided

(i) Only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance,

(ii) Reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators),

(iii) The secondary materials are never accumulated in such tanks for over twelve months without being reclaimed, and

(iv) The reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal

(9) Spent sulfuric acid used to produce virgin sulfuric acid, unless it is accumulated speculatively as defined in § 261.1(c) of these regulations

(10)(i) Spent wood preserving solutions that have been used and are reclaimed and are reused for their original intended purpose, and

(ii) Wastewaters from the wood preserving process that have been reclaimed and are reused to treat wood

(iii) Prior to reuse, the wood preserving wastewaters and spent wood preserving solutions described in paragraphs (a)(10)(i) and (a)(10)(ii) of this section, so long as they meet all of the following conditions

(A) The wood preserving wastewaters and spent wood preserving solutions are reused on-site at water borne plants in the production process for their original intended purpose,

(B) Prior to reuse, the wastewaters and spent wood preserving solutions are managed to prevent release to either land or groundwater or both,

(C) Any unit used to manage wastewaters and/or spent wood preserving solutions prior to reuse can be visually or otherwise determined to prevent such releases,

(D) Any drip pad used to manage the wastewaters and/or spent wood preserving solutions prior to reuse complies with the standards in Part 265, Subpart W of these regulations, regardless of whether the plant generates a total of less than 100 kg/month of hazardous waste, and

(E) Prior to operating pursuant to this exclusion, the plant owner or operator submits to the appropriate Regional Administrator or State Director a one-time notification stating that the plant intends to claim the exclusion, giving the date on which the plant intends to begin operating under the exclusion, and containing the following language " I have read the applicable regulation establishing an exclusion for wood preserving wastewaters and spent wood preserving solutions and understand it requires me to comply at all times with the conditions set out in the regulation " The plant must maintain a copy of that document in its on-site records for a period of no less than 3 years from the date specified in the notice The exclusion applies only so long as the plant meets all of the conditions If the plant goes out of compliance with any condition, it may apply to the appropriate Regional Administrator or State Director for reinstatement The Regional Administrator or State Director may reinstate the exclusion upon finding that the plant has returned to compliance with all conditions and that violations are not likely to recur

(11) EPA Hazardous Waste Nos K060, K087, K141, K142, K143, K144, K145, K147, and K148, and any wastes from the coke by-products processes that are hazardous only because they exhibit the Toxicity Characteristic (TC) specified in § 261.24 of this part, when, subsequent to generation, these materials are recycled to coke ovens, to the tar recovery process as a feedstock to produce coal tar, or mixed with coal tar prior to the sale or refining of the tar This exclusion is conditioned on there being no land disposal of the wastes from the point at which they are generated to the point at which they are recycled to coke ovens or tar recovery or refining processes, or mixed with coal tar

(12) Nonwastewater splash condenser dross residue from the treatment of K061 in high temperature metals recovery units, provided it is shipped in drums (if shipped) and not land disposed before recovery

(13)(i) Oil-bearing hazardous secondary materials (i.e., sludges, byproducts, or spent materials) that are generated at a petroleum refinery (SIC code 2911) and are inserted into the petroleum refining process (SIC code 2911--including, but not limited to, distillation, catalytic cracking, fractionation, or thermal cracking units (i.e., cokers)) unless the material is placed on the land, or speculatively accumulated before being so recycled Materials inserted into thermal cracking units are excluded under this paragraph, provided that the coke product also does not exhibit a characteristic of hazardous waste Oil-bearing hazardous secondary materials may be inserted into the same petroleum refinery where they are generated, or sent directly to another petroleum refinery, and still be excluded under this provision Except as provided in paragraph (a)(13)(ii) of this section, oil-bearing hazardous secondary materials generated elsewhere in the petroleum industry (i.e., from sources other than petroleum refineries) are not excluded under this section Residuals generated from processing or recycling materials excluded under this paragraph (a)(13)(i), where such materials as generated would have otherwise met a listing under Subpart D of this part, are designated as F037 listed wastes when disposed of or intended for disposal

(11) Recovered oil that is recycled in the same manner and with the same conditions as described in paragraph (a)(13)(i) of this section. Recovered oil is oil that has been reclaimed from secondary materials (including wastewater) generated from normal petroleum industry practices, including refining, exploration and production, bulk storage, and transportation incident thereto (SIC codes 1311, 1321, 1381, 1382, 1389, 2911, 4612, 4613, 4922, 4923, 4789, 5171, and 5172). Recovered oil does not include oil-bearing hazardous wastes listed in Subpart D of this part, however, oil recovered from such wastes may be considered recovered oil. Recovered oil does not include used oil as defined in § 279.1 of these regulations.

(14) Excluded scrap metal (processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal) being recycled.

(15) Shredded circuit boards being recycled provided that they are

(i) Stored in containers sufficient to prevent a release to the environment prior to recovery, and

(ii) Free of mercury switches, mercury relays and nickel-cadmium batteries and lithium batteries.

(16) Reserved.

(17) Secondary materials (i.e., sludges, by-products, and spent materials as defined in § 261.1) (other than hazardous wastes listed in Subpart D of this part) generated within the primary mineral processing industry from which minerals, acids, cyanide, water or other values are recovered by mineral processing or by beneficiation, provided that

(i) The secondary material is legitimately recycled to recover minerals, acids, cyanide, water or other values,

(ii) The secondary material is not accumulated speculatively,

(iii) Except as provided in paragraph (a)(17)(iv) of this section, the secondary material is stored in tanks, containers, or buildings meeting the following minimum integrity standards: a building must be an engineered structure with a floor, walls, and a roof all of which are made of non-earthen materials providing structural support (except smelter buildings may have partially earthen floors provided the secondary material is stored on the non-earthen portion), and have a roof suitable for diverting rainwater away from the foundation, a tank must be free standing, not be a surface impoundment (as defined in § 260.10 of these regulations), and be manufactured of a material suitable for containment of its contents, a container must be free standing and be manufactured of a material suitable for containment of its contents. If tanks or containers contain any particulate which may be subject to wind dispersal, the owner/operator must operate these units in a manner which controls fugitive dust. Tanks, containers, and buildings must be designed, constructed and operated to prevent significant releases to the environment of these materials.

(iv) The Regional Administrator or the State Director may make a site-specific determination, after public review and comment, that only solid mineral processing secondary materials may be placed on pads, rather than in tanks, containers, or buildings. Solid mineral processing secondary materials do not contain any free liquid. The decision-maker must affirm that pads are designed, constructed and operated to prevent significant releases of the secondary material into the environment. Pads must provide the same degree of containment afforded by the non-RCRA tanks, containers and buildings eligible for exclusion.

(A) The decision-maker must also consider if storage on pads poses the potential for significant releases via groundwater, surface water, and air exposure pathways. Factors to be considered for assessing the groundwater, surface water, air exposure pathways are the volume and physical and chemical properties of the secondary material, including its potential for migration off the pad, the potential for human or environmental exposure to hazardous constituents migrating from the pad via each exposure pathway, and the possibility and extent of harm to human and environmental receptors via each exposure pathway.

(B) Pads must meet the following minimum standards: be designed of non-earthen material that is compatible with the chemical nature of the mineral processing secondary material, capable of withstanding physical stresses associated with placement and removal, have run on/runoff controls, be operated in a manner which controls fugitive dust, and have integrity assurance through inspections and maintenance programs.

(C) Before making a determination under this paragraph, the Regional Administrator or State Director must provide notice and the opportunity for comment to all persons potentially interested in the determination. This can be accomplished by placing notice of this action in major local newspapers, or broadcasting notice over local radio stations.

(v) The owner or operator provides a notice to the Regional Administrator or State Director, identifying the following information: the types of materials to be recycled, the type and location of the storage units and recycling processes, and the annual quantities expected to be placed in non land-based units. This notification must be updated when there is a change in the type of materials recycled or the location of the recycling process.

(vi) For purposes of § 261.4(b)(7), mineral processing secondary materials must be the result of mineral processing and may not include any listed hazardous wastes. Listed hazardous wastes and characteristic hazardous wastes generated by non-mineral processing industries are not eligible for the conditional exclusion from the definition of solid waste.

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(18) Petrochemical recovered oil from an associated organic chemical manufacturing facility, where the oil is to be inserted into the petroleum refining process (SIC code 2911) along with normal petroleum refinery process streams, provided

(i) The oil is hazardous only because it exhibits the characteristic of ignitability (as defined in § 261.21) and/or toxicity for benzene (§ 261.24, waste code D018), and

(ii) The oil generated by the organic chemical manufacturing facility is not placed on the land, or speculatively accumulated before being recycled into the petroleum refining process. An "associated organic chemical manufacturing facility" is a facility where the primary SIC code is 2869, but where operations may also include SIC codes 2821, 2822, and 2865, and is physically co-located with a petroleum refinery, and where the petroleum refinery to which the oil being recycled is returned also provides hydrocarbon feedstocks to the organic chemical manufacturing facility. "Petrochemical recovered oil" is oil that has been reclaimed from secondary materials (i.e., sludges, byproducts, or spent materials, including wastewater) from normal organic chemical manufacturing operations, as well as oil recovered from organic chemical manufacturing processes.

(19) Spent caustic solutions from petroleum refining liquid treating processes used as a feedstock to produce cresylic or naphthemic acid unless the material is placed on the land, or accumulated speculatively as defined in § 261.1(c)

**(b) Solid wastes which are not hazardous wastes** The following solid wastes are not hazardous wastes

(1) Household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered (e g , refuse-derived fuel) or reused "Household waste" means any waste material (including garbage, trash and sanitary wastes in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campground, picnic grounds and day-use recreation areas ) A resource recovery facility managing municipal solid waste shall not be deemed to be treating, storing, disposing of, or otherwise managing hazardous wastes for purposes of regulation under this subtitle, if such facility

(i) Receives and burns only

(A) Household waste (from single and multiple dwellings, hotels, motels, and other residential sources) and

(B) Solid waste from commercial or industrial sources that does not contain hazardous waste, and

(ii) Such facility does not accept hazardous wastes and the owner or operator of such facility has established contractual requirements or other appropriate notification or inspection procedures to assure that hazardous wastes are not received at or burned in such facility

(2) Solid wastes generated by any of the following and which are returned to the soils as fertilizers

(i) The growing and harvesting of agricultural crops

(ii) The raising of animals, including animal manures

(3) Mining overburden returned to the mine site

(4) Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels

(5) Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy

(6)(i) Wastes which fail the test for the Toxicity Characteristic because chromium is present or are listed in Subpart D due to the presence of chromium, which do not fail the test for the Toxicity Characteristic for any other constituent or are not listed due to the presence of any other constituent, and which do not fail the test for any other characteristic, if it is shown by a waste generator or by waste generators that

(A) The chromium in the waste is exclusively (or nearly exclusively) trivalent chromium, and

(B) The waste is generated from an industrial process which uses trivalent chromium exclusively (or nearly exclusively) and the process does not generate hexavalent chromium, and

(C) The waste is typically and frequently managed in non-oxidizing environments

(ii) Specific wastes which meet the standard in paragraphs (b)(6)(i)(A), (B) and (C) (so long as they do not fail the test for the Toxicity Characteristic for any other constituent, and do not exhibit any other characteristic) are

(A) Chrome (blue) trimmings generated by the following subcategories of the leather tanning and finishing industry, hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue, and shearing

(B) Chrome (blue) shavings generated by the following subcategories of the leather tanning and finishing industry hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue, and shearing

(C) Buffing dust generated by the following subcategories of the leather tanning and finishing industry, hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue

(D) Sewer screenings generated by the following subcategories of the leather tanning and finishing industry hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue, and shearing

(E) Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry, hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue, and shearing

(F) Wastewater treatment sludges generated by the following subcategories of the



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leather tanning and finishing industry hair pulp/chrome tan/retan/wet finish, hair  
save/chrome tan/retan/wet finish, and through-the-blue

(G) Waste scrap leather from the leather tanning industry, the shoe manufacturing  
industry, and other leather product manufacturing industries

(H) Wastewater treatment sludges from the production of  $\text{TiO}_2$  pigment using  
chromium-bearing ores by the chloride process

(7) Solid waste from the extraction, beneficiation and processing of ores and minerals  
(including coal, phosphate rock and overburden from the mining of uranium ore), except as  
provided by 40 CFR § 266.112 for facilities that burn or process hazardous waste

(i) For purposes of § 261.4(b)(7) beneficiation of ores and minerals is restricted to the  
following activities: crushing, grinding, washing, dissolution, crystallization, filtration,  
sorting, sizing, drying, sintering, pelletizing, briquetting, calcining to remove water and/or  
carbon dioxide, roasting, autoclaving, and/or chlorination in preparation for leaching  
(except where the roasting (and/or autoclaving and/or chlorination)/leaching sequence  
produces a final or intermediate product that does not undergo further beneficiation or  
processing), gravity concentration, magnetic separation, electrostatic separation, flotation,  
ion exchange, solvent extraction, electrowinning, precipitation, amalgamation, and heap,  
dump, vat, tank, and in situ leaching

(ii) For the purposes of § 261.4(b)(7), solid waste from the processing of ores and minerals  
includes only the following wastes as generated:

(A) Slag from primary copper processing,

(B) Slag from primary lead processing,

(C) Red and brown muds from bauxite refining,

(D) Phosphogypsum from phosphoric acid production,

(E) Slag from elemental phosphorus production,

(F) Gasifier ash from coal gasification,

(G) Process wastewater from coal gasification,

(H) Calcium sulfate wastewater treatment plant sludge from primary copper  
processing,

(I) Slag tailings from primary copper processing,

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- (J) Fluorogypsum from hydrofluoric acid production,
- (K) Process wastewater from hydrofluoric acid production,
- (L) Air pollution control dust/sludge from iron blast furnaces,
- (M) Iron blast furnace slag,
- (N) Treated residue from roasting/leaching of chrome ore,
- (O) Process wastewater from primary magnesium processing by the anhydrous process,
- (P) Process wastewater from phosphoric acid production,
- (Q) Basic oxygen furnace and open hearth furnace air pollution control dust/sludge from carbon steel production,
- (R) Basic oxygen furnace and open hearth furnace slag from carbon steel production,
- (S) Chloride process waste solids from titanium tetrachloride production,
- (T) Slag from primary zinc processing

(iii) A residue derived from co-processing mineral processing secondary materials with normal beneficiation raw materials or with normal mineral processing raw materials remains excluded under paragraph (b) of this section if the owner or operator

(A) Processes at least 50 percent by weight normal beneficiation raw materials or normal mineral processing raw materials, and

(B) Legitimately reclaims the secondary mineral processing materials

(8) Cement kiln dust waste

(9) Solid waste which consists of discarded arsenical-treated wood or wood products which fails the test for the Toxicity Characteristic for Hazardous Waste Codes D004 through D017 and which is not a hazardous waste for any other reason if the waste is generated by persons who utilize the arsenical-treated wood and wood products for these materials' intended end use

(10) Petroleum-contaminated media and debris that fail the test for the Toxicity Characteristic of § 261 24 (Hazardous Waste Codes D018 through D043 only) and are subject to the corrective action regulations under 40 CFR Part 280

(11) RESERVED

(12) Used chlorofluorocarbon refrigerants from totally enclosed heat transfer equipment, including mobile air conditioning systems, mobile refrigeration, and commercial and industrial air conditioning and refrigeration systems that use chlorofluorocarbons as the heat transfer fluid in a refrigeration cycle, provided the refrigerant is reclaimed for further use

(13) Non-terne plated used oil filters that are not mixed with wastes listed in Subpart D of this part if these oil filters have been gravity hot-drained using one of the following methods

(i) Puncturing the filter anti-drain back valve or the filter dome end and hot-draining,

(ii) Hot-draining and crushing,

(iii) Dismantling and hot-draining, or

(iv) Any other equivalent hot-draining method which will remove used oil

(14) Used oil re-refining distillation bottoms that are used as feedstock to manufacture asphalt products

(15) Leachate or gas condensate collected from landfills where certain solid wastes have been disposed, provided that

(i) The solid wastes disposed would meet one or more of the listing descriptions for Hazardous Waste Codes K169, K170, K171, K172, K174, K175, K176, K177, and K178, if these wastes had been generated after the effective date of the listing,

(ii) The solid wastes described in paragraph (b)(15)(i) of this section were disposed prior to the effective date of the listing,

(iii) The leachate or gas condensate do not exhibit any characteristic of hazardous waste nor are derived from any other listed hazardous waste,

(iv) Discharge of the leachate or gas condensate, including leachate or gas condensate transferred from the landfill to a POTW by truck, rail, or dedicated pipe, is subject to regulation under sections 307(b) or 402 of the Clean Water Act

(v) As of February 13, 2001, leachate or gas condensate derived from K169-K172 is no longer exempt if it is stored or managed in a surface impoundment prior to discharge. After November 21, 2003, leachate or gas condensate derived from K176, K177, and K178 will no longer be exempt if it is stored or managed in a surface impoundment prior to discharge. There is one exception: if the surface impoundment is used to temporarily store leachate or gas condensate in response to an emergency situation (e.g., shutdown of wastewater treatment system), provided the impoundment has a double liner, and provided the leachate or gas condensate is removed from the impoundment and continues to be managed in compliance with the conditions of this paragraph (b)(15)(v) after the emergency ends.

(c) **Hazardous wastes which are exempted from certain regulations** A hazardous waste which

is generated in a product or raw material storage tank, a product or raw material transport vehicle or vessel, a product or raw material pipeline, or in a manufacturing process unit or an associated non-waste-treatment-manufacturing unit, is not subject to regulation under Parts 262 through 266, Part 268 and Part 100 or to the notification requirements of Part 99 of these regulations until it exits the unit in which it was generated, unless the unit is a surface impoundment, or unless the hazardous waste remains in the unit more than 90 days after the unit ceases to be operated for manufacturing, or for storage or transportation of product or raw materials

(d) **Samples** (1) Except as provided in paragraph (d)(2) of this section, a sample of solid waste or a sample of water, soil, or air, which is collected for the purpose of testing to determine its characteristics or composition, is not subject to any requirements of this part or Parts 262 through 266, Part 268 or Part 100 or to the notification requirements of Part 99 of these regulations when

- (i) The sample is being transported to a laboratory for the purpose of testing or
- (ii) The sample is being transported back to the sample collector after testing, or
- (iii) The sample is being stored by the sample collector before transport to a laboratory for testing, or
- (iv) The sample is being stored in a laboratory before testing, or
- (v) The sample is being stored in a laboratory after testing but before it is returned to the sample collector, or
- (vi) The sample is being stored temporarily in the laboratory after testing for a specific purpose (for example, until conclusion of a court case or enforcement action where further testing of the sample may be necessary)

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(2) In order to qualify for the exemption in paragraph (d)(1)(i) and (ii) of this section, a sample collector shipping samples to a laboratory and laboratory returning samples to a sample collector must

(i) Comply with U S Department of Transportation (DOT), U S Postal Service (USPS), or any other applicable shipping requirements, or

(ii) Comply with the following requirements if the sample collector determines that DOT, USPS, or other shipping requirements do not apply to the shipment of the sample

(A) Assure that the following information accompanies the sample

(1) The sample collector's name, mailing address, and telephone number,

(2) The laboratory's name, mailing address, and telephone number,

(3) The quantity of the sample,

(4) The date of shipment, and

(5) A description of the sample

(B) Package the sample so that it does not leak, spill, or vaporize from its packaging

(3) This exemption does not apply if the laboratory determines that the waste is hazardous but the laboratory is no longer meeting any of the conditions stated in paragraph (d)(1) of this section

**(e) Treatability Study Samples**

(1) Except as provided in paragraph (e)(2) of this section, persons who generate or collect samples for the purpose of conducting treatability studies as defined in § 260 10, are not subject to any requirement of Parts 261 through 263 of these regulations or to the notification requirements of Section 99 of the Colorado Hazardous Waste Regulations, nor are such samples included in the quantity determinations of § 261 5 and § 262 34(d) when

(i) The sample is being collected and prepared for transportation by the generator or sample collector, or

(ii) The sample is being accumulated or stored by the generator or sample collector prior to transportation to a laboratory or testing facility, or

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(iii) The sample is being transported to the laboratory or testing facility for the purpose of conducting a treatability study

(2) The exemption in paragraph (e)(1) of this section is applicable to samples of hazardous waste being collected and shipped for the purpose of conducting treatability studies provided that

(i) The generator or sample collector uses (in "treatability studies") no more than 10,000 kg of media contaminated with non-acute hazardous waste, 1000 kg of non-acute hazardous waste other than contaminated media, 1 kg of acute hazardous waste, 2500 kg of media contaminated with acute hazardous waste for each process being evaluated for each generated waste stream, and

(ii) The mass of each sample shipment does not exceed 10,000 kg, the 10,000 kg quantity may be all media contaminated with non-acute hazardous waste, or may include 2500 kg of media contaminated with acute hazardous waste, 1000 kg of hazardous waste, and 1 kg of acute hazardous waste, and

(iii) The sample must be packaged so that it will not leak, spill, or vaporize from its packaging during shipment and the requirements of paragraph A or B of this subparagraph are met

(A) The transportation of each sample shipment complies with U S Department of Transportation (DOT), U S Postal Service (USPS), or any other applicable shipping requirements, or

(B) If the DOT, USPS, or other shipping requirements do not apply to the shipment of the sample, the following information must accompany the sample

(1) The name, mailing address, and telephone number of the originator of the sample,

(2) The name, address, and telephone number of the facility that will perform the treatability study,

(3) The quantity of the sample,

(4) The date of shipment, and

(5) A description of the sample, including its EPA Hazardous Waste Number

(iv) The sample is shipped to a laboratory or testing facility which is exempt under § 261.4(f) or has an appropriate RCRA permit or interim status

(v) The generator or sample collector maintains the following records for a period ending 3 years after completion of the treatability study

(A) Copies of the shipping documents,

(B) A copy of the contract with the facility conducting the treatability study,

(C) Documentation showing

(1) The amount of waste shipped under this exemption,

(2) The name, address, and EPA identification number of the laboratory or testing facility that received the waste,

(3) The date the shipment was made, and

(4) Whether or not unused samples and residues were returned to the generator

(vi) The generator reports the information required under paragraph (e)(2)(v)(C) of this section in its biennial report

(3) The Director may grant requests on a case-by-case basis for up to an additional two years for treatability studies involving bioremediation. The Director may grant requests on a case-by-case basis for quantity limits in excess of those specified in paragraphs (e)(2)(i) and (ii) and (f)(4) of this section, for up to an additional 5000 kg of media contaminated with non-acute hazardous waste, 500 kg of non-acute hazardous waste, 2500 kg of media contaminated with acute hazardous waste and 1 kg of acute hazardous waste

(i) In response to requests for authorization to ship, store and conduct treatability studies on additional quantities in advance of commencing treatability studies. Factors to be considered in reviewing such requests include the nature of the technology, the type of process (e.g., batch versus continuous), size of the unit undergoing testing (particularly in relation to scale-up considerations), the time/quantity of material required to reach steady state operating conditions, or test design considerations such as mass balance calculations

(ii) In response to requests for authorization to ship, store and conduct treatability studies on additional quantities after initiation or completion of initial treatability studies, when: There has been an equipment or mechanical failure during the conduct of a treatability study, there is a need to verify the results of a previously conducted treatability study, there is a need to study and analyze alternative techniques within a previously evaluated treatment process, or there is a need to do further evaluation of an ongoing treatability study to determine final specifications for treatment

(iii) The additional quantities and timeframes allowed in paragraph (e)(3)(i) and (ii) of this

section are subject to all the provisions in paragraphs (e)(1) and (e)(2) (iii) through (vi) of this section. The generator or sample collector must apply to the Director and provide in writing the following information:

(A) The reason why the generator or sample collector requires additional time or quantity of sample for treatability study evaluation and the additional time or quantity needed,

(B) Documentation accounting for all samples of hazardous waste from the waste stream which have been sent for or undergone treatability studies including the date each previous sample from the waste stream was shipped, the quantity of each previous shipment, the laboratory or testing facility to which it was shipped, what treatability study processes were conducted on each sample shipped, and the available results on each treatability study,

(C) A description of the technical modifications or change in specifications which will be evaluated and the expected results,

(D) If such further study is being required due to equipment or mechanical failure, the applicant must include information regarding the reason for the failure or breakdown and also include what procedures or equipment improvements have been made to protect against further breakdowns, and

(E) Such other information that the Director considers necessary

**(f) Samples Undergoing Treatability Studies at Laboratories and Testing Facilities**

Samples undergoing treatability studies and the laboratory or testing facility conducting such treatability studies (to the extent such facilities are not otherwise subject to Colorado Hazardous Waste Act requirements) are not subject to any requirement of Parts 261 through 268, and Part 100, or to the notification requirements of Part 99 of the Colorado Hazardous Waste Regulations provided that the conditions of paragraphs (f)(1) through (14) of this section are met. A mobile treatment unit (MTU) may qualify as a testing facility subject to paragraphs (f)(1) through (14) of this section. Where a group of MTUs are located at the same site, the limitations specified in (f)(1) through (14) of this section apply to the entire group of MTUs collectively as if the group were one MTU.

(1) No less than 45 days before conducting treatability studies, or receiving samples of hazardous waste to be used in treatability studies, the testing facility submits the following information in writing to the Director, Hazardous Materials and Waste Management Division, Colorado Department of Public Health and Environment:

(A) Facility name, location, and mailing address,

(B) Facility EPA ID number,

(C) Facility contact person, title, and phone,



(D) Whether or not the facility has ever submitted a Part A or Part B application,

(E) A list of existing environmental permits held by the facility,

(F) The general nature of the facility operation,

(2) The laboratory or testing facility conducting the treatability study obtains an EPA identification number prior to receiving waste samples or conducting treatability studies

(3) No more than a total of 10,000 kg of "as received" media contaminated with non-acute hazardous waste, 2500 kg of media contaminated with acute hazardous waste or 250 kg of other "as received" hazardous waste is subject to initiation of treatment in all treatability studies in any single day. "As received" waste refers to the waste as received in the shipment from the generator or sample collector

(4) The quantity of "as received" hazardous waste stored at the facility for the purpose of evaluation in treatability studies does not exceed 10,000 kg, the total of which can include 10,000 kg of media contaminated with non-acute hazardous waste, 2500 kg of media contaminated with acute hazardous waste, 1000 kg of non-acute hazardous wastes other than contaminated media, and 1 kg of acute hazardous waste. This quantity limitation does not include treatment materials (including nonhazardous solid waste) added to "as received" hazardous waste

(5) Storage of waste samples and treatability study residues must meet the following minimum conditions

(i) Wastes must be stored and managed in a way to prevent any release into the environment and must not pose a human health hazard

(ii) Any waste material spilled or released must be contained, collected, and disposed of properly within 24 hours

(iii) Container storage areas must be designed and operated such that

(A) Containers or liners are compatible with the stored waste,

(B) Containers are protected from any standing liquids,

(C) Containers remain closed except when it is necessary to add or remove waste,

(D) Contents of containers which are leaking or in poor condition must be transferred to a container in good condition or otherwise properly managed

(iv) Tank systems must be designed and operated such that

(A) The tank system integrity is sufficient to ensure that the tank will not leak,

collapse, rupture, or fail while containing waste,

(B) Any release is detected, contained, collected and removed within 24 hours,

(C) Appropriate controls and practices are in place to prevent spills and overflows

(v) Ignitable and reactive waste must be protected from any material or conditions that may cause the waste to ignite or react

(vi) Contact between incompatible wastes must be prevented.

(6) No more than 90 days have elapsed since the treatability study for the sample was completed, or no more than one year (two years for treatability studies involving bioremediation) have elapsed since the generator or sample collector shipped the sample to the laboratory or testing facility, whichever date first occurs. Up to 500 kg of treated material from a particular waste stream from treatability studies may be archived for future evaluation up to five years from the date of initial receipt. Quantities of materials archived are counted against the total storage limit for the facility.

(7) The treatability study does not involve the placement of hazardous waste on the land or open burning of hazardous waste.

(8) The facility maintains records for 3 years following completion of each study that show compliance with the treatment rate limits and the storage time and quantity limits. The following specific information must be included for each treatability study conducted:

(i) The name, address, and EPA identification number of the generator and the name of the sample collector of each waste sample,

(ii) The date the shipment was received,

(iii) The quantity of waste accepted,

(iv) The quantity of "as received" waste in storage each day,

(v) The date the treatment study was initiated and the amount of "as received" waste introduced to treatment each day,

(vi) The date the treatability study was concluded,

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- (vii) The date any unused sample or residues generated from the treatability study were returned to the generator or sample collector or, if sent to a designated facility, the name of the facility and the EPA identification number
- (9) The facility keeps, on-site, a copy of the treatability study contract and all shipping papers associated with the transport of treatability study samples to and from the facility for a period ending 3 years from the completion date of each treatability study
- (10) The facility prepares and submits a report to the Director by March 15 of each year that estimates the number of studies and the amount of waste expected to be used in treatability studies during the current year, and includes the following information for the previous calendar year
- (i) The name, address, and EPA identification number of the facility conducting the treatability studies,
  - (ii) The types (by process) of treatability studies conducted,
  - (iii) The names and addresses of persons for whom studies have been conducted (including their EPA identification numbers),
  - (iv) The total quantity of waste in storage each day,
  - (v) The quantity and types of waste subjected to treatability studies,
  - (vi) When each treatability study was conducted,
  - (vii) The final disposition of residues and unused sample from each treatability study,
  - (viii) A summary of spills or releases of waste material to the environment
- (11) The facility determines whether any unused sample or residues generated by the treatability study are hazardous waste under § 261.3 and, if so, are subject to Parts 261 through 268, and Part 100 of these regulations, and all applicable Federal regulations under HSWA, unless the residues and unused samples are returned to the sample originator under the § 261.4(e) exemption
- (12) The facility notifies the Director by letter when the facility is no longer planning to conduct any treatability studies at the site
- (13) The facility submits a certified statement to the Director specifying that all waste materials from treatability studies have been removed from the facility, and that no contamination remains on-site

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(14) The facility provides adequate personnel training to ensure facility regulatory compliance, effective emergency response, and prevent undue worker exposure to hazardous waste

**(g) Dredged material that is not a hazardous waste** Dredged material that is subject to the requirements of a permit that has been issued under 404 of the Federal Water Pollution Control Act (33 U.S.C. 1344) or section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 1413) is not a hazardous waste. For this paragraph (g), the following definitions apply:

(1) The term dredged material has the same meaning as defined in 40 CFR 232.2,

(2) The term permit means:

(i) A permit issued by the U.S. Army Corps of Engineers (Corps) or an approved State under section 404 of the Federal Water Pollution Control Act (33 U.S.C. 1344),

(ii) A permit issued by the Corps under section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 1413), or

(iii) In the case of Corps civil works projects, the administrative equivalent of the permits referred to in paragraphs (g)(2)(i) and (ii) of this section, as provided for in Corps regulations (for example, see 33 CFR 336.1, 336.2, and 337.6)

**§ 261.5 Special requirements for hazardous waste generated by conditionally exempt small quantity generators**

(a) A generator is a conditionally exempt small quantity generator in a calendar month if he/she generates less than 100 kilograms of hazardous waste in that month (100 kilograms is approximately 220 pounds).

(b) Except for those wastes identified in paragraphs (e), (f), (g), and (j) of this section, a conditionally exempt small quantity generator's hazardous wastes are not subject to regulation under Parts 262 through 268 and Part 100, and the notification requirements of Part 99 of these regulations, provided the generator complies with the requirements of paragraphs (f), (g), and (j) of this section. Hazardous waste that is subject to the special requirements of § 261.6(b) is included in the quantity determinations of this section and is subject to the requirements of this section.

(c) When making the quantity determinations of this part and Part 262, the generator must include all hazardous waste that it generates, except hazardous waste that:

(1) Is exempt from regulation under § 261.4(c) through (f), § 261.6(a)(3), § 261.7(a)(1), or § 261.8, or

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- (2) Is managed immediately upon generation only in on-site elementary neutralization units, wastewater treatment units, or totally enclosed treatment facilities as defined in § 260.10, or
- (3) Is recycled, without prior storage or accumulation, only in an on-site process subject to regulation under § 261.6(c)(2), or
- (4) Is used oil managed under the requirements of § 261.6(a)(4) and Part 279, or
- (5) Is spent lead-acid batteries managed under the requirements of Part 267, Subpart G, or
- (6) Is universal waste managed under § 261.9 and Part 273

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(d) In determining the quantity of hazardous waste he/she generates, a generator need not include

- (1) Hazardous waste when it is removed from on-site storage, or
- (2) Hazardous waste produced by on-site treatment (including reclamation) of his/her hazardous waste, so long as the hazardous waste that is treated was counted once, or
- (3) Spent materials that are generated, reclaimed, and subsequently reused on-site, so long as such spent materials have been counted once

(e) If a generator generates acutely hazardous waste in a calendar month in quantities greater than set forth below, all quantities of that acutely hazardous waste are subject to full regulation under Parts 262 through 268 and Part 100, and the notification requirements of Part 99 of these regulations

- (1) A total of one kilogram of acute hazardous wastes listed in §§ 261.31, 261.32, or 261.33(e)
- (2) A total of 100 kilograms of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of any acute hazardous wastes listed in §§ 261.31, 261.32 or 261.33(e)

[Comment "Full regulation" means those regulations applicable to generators of greater than 1,000 kg of non-acutely hazardous waste in a calendar month ]

(f) In order for acute hazardous wastes generated by a generator of acute hazardous wastes in quantities equal to or less than those set forth in paragraph (e)(1) or (e)(2) of this section to be excluded from full regulation under this section, the generator must comply with the following requirements

- (1) Section 262.11 of these regulations,
- (2) The generator may accumulate acute hazardous waste on-site. If the generator accumulates at any time acute hazardous wastes in quantities greater than those set forth in paragraph (e)(1) or (e)(2) of this section, all of those accumulated wastes are subject to regulation under Parts 262 to 268, 99 and 100. The time period of § 262.34(a) for accumulation of wastes on-site begins when the accumulated wastes exceed the applicable exclusion limit,

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(3) A conditionally exempt small quantity generator may either treat his/her acute hazardous waste in an on-site facility or ensure delivery to an off-site treatment, storage or disposal facility, either of which, if located in the U S , is

(i) Permitted under Parts 100 and 264 of these regulations,

(ii) In interim status under Parts 100 and 265 of these regulations,

(iii) Authorized to manage hazardous waste by EPA or a State with a hazardous waste management program approved under 40 CFR Part 271,

(iv) A solid waste landfill specifically authorized by the Department and county pursuant to Section 30-20-101 et seq , C R S to accept acute hazardous waste from a conditionally exempt small quantity generator (\*\* Before disposing of acute hazardous waste in such a manner, check with the Department to see if there are any solid waste landfills specifically authorized to accept the waste ),

(v) A facility which

(A) Beneficially uses or reuses, or legitimately recycles or reclaims its waste, or

(B) Treats its wastes prior to beneficial use or reuse, or legitimate recycling or reclamation, or

(vi) For universal waste managed under Part 273 of these regulations, a universal waste handler or destination facility subject to the requirements of Part 273 of these regulations

(g) In order for hazardous waste generated by a conditionally exempt small quantity generator in quantities of less than 100 kilograms of hazardous waste during a calendar month to be excluded from full regulation under this section, the generator must comply with the following requirements

(1) Comply with § 262.11 of these regulations,

(2) The conditionally exempt small quantity generator may accumulate hazardous waste on-site. If the generator accumulates at any time more than a total of 1000 kilograms of his/her hazardous wastes, all of those accumulated wastes are subject to regulation under the special provisions of Part 262 applicable to generators of between 100 kg and 1000 kg of hazardous waste in a calendar month as well as the requirements of Parts 263 through 268, 99 and 100 of these regulations. The time period of § 262.34(d) for accumulation of wastes on-site begins for a conditionally exempt small quantity generator when the accumulated wastes exceed 1000 kilograms

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(3) A conditionally exempt small quantity generator may either treat his/her hazardous waste in an on-site facility, or ensure delivery to an off-site treatment, storage or disposal facility, either of which, if located in the U S , is

(i) Permitted under Parts 100 and 264 of these regulations,

(ii) In interim status under Parts 100 and 265 of these regulations,

(iii) Authorized to manage hazardous waste by EPA or a State with a hazardous waste management program approved under 40 CFR Part 271,

(iv) A solid waste landfill specifically authorized by the Department and the county pursuant to Section 30-20-101 et seq , C R S to accept hazardous waste from a conditionally exempt small quantity generator (\*\*Before disposing of hazardous waste in such a manner, check with the Department to see if there are any solid waste landfills specifically authorized to accept the waste ),

(v) A facility which

(A) Beneficially uses or re-uses, or legitimately recycles or reclaims its waste, or

(B) Treats its waste prior to beneficial use or re-use, or legitimate recycling or reclamation, or

(vi) For universal waste managed under Part 273 of these regulations, a universal waste handler or destination facility subject to the requirements of Part 273 of these regulations

(h) Hazardous waste subject to the reduced requirements of this section may be mixed with non-hazardous waste and remain subject to these reduced requirements even though the resultant mixture exceeds the quantity limitations identified in this section, unless the mixture meets any of the characteristics of hazardous wastes identified in Subpart C

(i) If a small quantity generator or any person mixes a solid waste with a hazardous waste that exceeds a quantity exclusion level of this section, the mixture is subject to full regulation

(j) If a conditionally exempt small quantity generator's wastes are mixed with used oil, the mixture is subject to Part 279 of these regulations if it is destined to be burned for energy recovery Any material produced from such a mixture by processing, blending, or other treatment is also so regulated if it is destined to be burned for energy recovery



**§ 261.6 Requirements for recyclable materials**

(a)(1) Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of paragraphs (b) and (c) of this section, except for the materials listed in paragraphs (a)(2) and (a)(3) of this section. Hazardous wastes that are recycled will be known as "recyclable materials."

(2) The following recyclable materials are not subject to the requirements of this section but are regulated under Subparts C through G of Part 267 of these regulations and all applicable provisions in Part 100 of these regulations or 40 CFR Part 266, Subpart E:

- (i) Recyclable materials used in a manner constituting disposal (See Subpart C),
- (ii) Hazardous wastes burned for energy recovery in boilers and industrial furnaces that are not regulated under Subpart O of Part 264 or 265 of these regulations (see Subpart D),
- (iii) Recyclable materials from which precious metals are reclaimed (see Subpart F),
- (iv) Spent lead-acid batteries that are being reclaimed (see Subpart G).

(3) The following recyclable materials are not subject to regulation under Parts 262 through 268 or Part 100 of these regulations, and are not subject to the notification requirements of Part 99 of these regulations:

(i) Industrial ethyl alcohol that is reclaimed except that, unless provided otherwise in an international agreement as specified in § 262.58:

(A) A person initiating a shipment for reclamation in a foreign country, and any intermediary arranging for the shipment, must comply with the requirements applicable to a primary exporter in §§ 262.53, 262.56 (a)(1) through (4), (6), and (b), and 262.57, export such materials only upon consent of the receiving country and in conformance with the EPA Acknowledgment of Consent to the shipment to the transporter transporting the shipment for export,

(B) Transporters transporting a shipment for export may not accept a shipment if he/she knows the shipment does not conform to the EPA Acknowledgment of Consent, must ensure that a copy of the EPA Acknowledgment of Consent accompanies the shipment and must ensure that it is delivered to the facility designated by the persons initiating the shipment.

(ii) Scrap metal that is not excluded under § 261.4(a)(14),

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(iii) Fuels produced from the refining of oil-bearing hazardous wastes along with normal process streams at a petroleum refining facility if such wastes result from normal petroleum refining, production, and transportation practices (this exemption does not apply to fuels produced from oil recovered from oil-bearing hazardous waste, where such recovered oil is already excluded under § 261.4(a)(13),

(iv)(A) Hazardous waste fuel produced from oil-bearing hazardous waste from petroleum refining, production, or transportation practices, or produced from oil reclaimed from such hazardous wastes, where such hazardous wastes are reintroduced into a process that does not use distillation or does not produce products from crude oil so long as the resulting fuel meets the used oil specification under § 279.11 of these regulations and so long as no other hazardous wastes are used to produce the hazardous waste fuel,

(B) Hazardous waste fuel produced from oil-bearing hazardous waste from petroleum refining production, and transportation practices, where such hazardous wastes are reintroduced into a refining process after a point at which contaminants are removed, so long as the fuel meets the used oil fuel specification under § 279.11 of these regulations, and

(C) Oil reclaimed from oil-bearing hazardous wastes from petroleum refining, production, and transportation practices, which reclaimed oil is burned as a fuel without reintroduction to a refining process, so long as the reclaimed oil meets the used oil fuel specification under § 279.11 of these regulations

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- (4) Used oil that is recycled and is also a hazardous waste solely because it exhibits a hazardous characteristic is not subject to the requirements of Parts 260 through 268 of these regulations, but is regulated under Part 279 of these regulations. Used oil that is recycled includes any used oil which is reused, following its original use, for any purpose (including the purpose for which the oil was originally used). Such term includes, but is not limited to, oil which is re-refined, reclaimed, burned for energy recovery, or reprocessed.
- (5) Hazardous waste that is exported to or imported from designated member countries of the Organization for Economic Cooperation and Development (OECD) (as defined in § 262.58(a)(1) of these regulations) for the purpose of recovery is subject to the requirements of Part 262, Subpart H, if it is subject to either the manifesting requirements of Part 262, to the universal waste management standards of 40 CFR Part 273, or to the requirements of Part 273 of these regulations.
- (b) Generators and transporters of recyclable materials are subject to the applicable requirements of Parts 262 and 263 of these regulations and the notification requirements of Part 99, except as provided in paragraph (a) of this section.
- (c)(1) Owners or operators of facilities that store recyclable materials before they are recycled are regulated under all applicable provisions of Subparts A through L, AA, BB, and CC of Parts 264 and 265, Parts 266 through 268 and Part 100 of these regulations and the notification requirements of Part 99 of these regulations, except as provided in paragraph (a) of this section. (The recycling process itself is exempt from regulation except as provided in § 261.6(d).)
- (2) Owners or operators of facilities that recycle recyclable materials without storing them before they are recycled are subject to the following requirements, except as provided in paragraph (a) of this section:
- (i) Notification requirements of Part 99 of these regulations,
  - (ii) Sections 265.71 and 265.72 (dealing with the use of the manifest and manifest discrepancies) of these regulations
  - (iii) Section 261.6(d) of these regulations
- (d) Owners or operators of facilities subject to RCRA permitting requirements with hazardous waste management units that recycle hazardous wastes are subject to the requirements of subparts AA and BB of Part 264 or 265 of these regulations.

**§ 261.7 Residues of hazardous waste in empty containers**

(a)(1) Any hazardous waste remaining in either (i) an empty container or (ii) an inner liner removed from an empty container, as defined in paragraph (b) of this section, is not subject to regulation under Parts 261 through 266, Part 268 or Part 100 or to the notification requirements of Part 99 of these regulations

(2) Any hazardous waste in either (i) a container that is not empty or (ii) an inner liner removed from a container that is not empty, as defined in paragraph (b) of this section is subject to regulation under Parts 261 through 266, Part 268, and Part 100 of these regulations and the notification requirements of Part 99 of these regulations

(b)(1) A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste listed in §§ 261.31, 261.32, or 261.33(e) of these regulations is empty if

(i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and

(ii) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner or,

(iii)(A) No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 110 gallons in size, or

(B) No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 110 gallons in size

(2) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric

(3) A container or an inner liner removed from a container that has held an acute hazardous waste listed in §§ 261.31, 261.32, or 261.33(e) is empty if

(i) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate,

(ii) The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal, or

(iii) In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed

**§ 261.8 PCB Wastes Regulated Under Toxic Substance Control Act**

The disposal of PCB-containing dielectric fluid and electric equipment containing such fluid authorized for use and regulated under CFR Part 761 and that are hazardous only because they fail the test for the Toxicity Characteristic (Hazardous Waste Codes D018 through D043 only) are exempt from regulation under Parts 261 through 265, and Parts 268 and 100 of these regulations and CFR Part 124, and the notification requirements of section 3010 of RCRA

**§ 261.9 Requirements for Universal Waste**

(a) The wastes listed in this section are exempt from regulation under Parts 262 through 268, and Part 100 of these regulations except as specified in Part 273 of these regulations and, therefore are not fully regulated as hazardous waste. The wastes listed in this section are subject to regulation under Part 273

- (1) Batteries as described in § 273.2(a) of these regulations,
- (2) Pesticides as described in § 273.2(b) of these regulations,
- (3) Mercury-containing devices as described in § 273.2(c) of these regulations,
- (4) Aerosol cans as described in § 273.2(d) of these regulations,
- (5) Lamps as described in § 273.2(e) of these regulations, and
- (6) Electronic devices and electronic components as described in § 273.2(f) of these regulations

**Subpart B - Criteria for Identifying the Characteristics of Hazardous Waste and for Listing Hazardous Waste**

**§ 261 10 Criteria for identifying the characteristics of hazardous waste**

(a) The Department shall identify and define a characteristic of hazardous waste in Subpart C only upon determining that

(1) A solid waste that exhibits the characteristic may

(i) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness, or

(ii) Pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed, and

(2) The characteristic can be

(i) Measured by an available standardized test method which is reasonably within the capability of generators of solid waste or private sector laboratories that are available to serve generators of solid waste, or

(ii) Reasonably detected by generators of solid waste through their knowledge of their waste

**§ 261 11 Criteria for listing hazardous waste**

(a) The Department shall list a solid waste as a hazardous waste only upon determining that the solid waste meets one of the following criteria

(1) It exhibits any of the characteristics of hazardous waste identified in Subpart C

(2) It has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral LD 50 toxicity (rat) of less than 50 milligrams per kilogram, an inhalation LC 50 toxicity (rat) of less than 2 milligrams per liter, or a dermal LD 50 toxicity (rabbit) of less than 200 milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness (Waste listed in accordance with these criteria will be designated Acute Hazardous Waste )

(3) It contains any of the toxic constituents listed in Appendix VIII and after considering the following factors, the Director concludes that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed

- (i) The nature of the toxicity presented by the constituent
- (ii) The concentration of the constituent in the waste
- (iii) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in paragraph (a)(3)(vii) of this section
- (iv) The persistence of the constituent or any toxic degradation product of the constituent
- (v) The potential for the constituent or any toxic degradation product of the constituent to degrade into nonharmful constituents and the rate of degradation
- (vi) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems
- (vii) The plausible types of improper management to which the waste could be subjected
- (viii) The quantities of the waste generated at individual generation sites or on a regional or national basis
- (ix) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent
- (x) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent
- (xi) Such other factors as may be appropriate

Substances will be listed on Appendix VIII only if they have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms

(Wastes listed in accordance with these criteria will be designated Toxic wastes )

(b) The Director may list classes or types of solid waste as hazardous waste if he/she has reason to believe that individual wastes, within the class or type of waste, typically or frequently are hazardous under the definition of hazardous waste found in Section 1004(5) of the Act

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(c) The Department will use the criteria for listing specified in this section to establish the exclusion limits referred to in § 261 5(c)

### **Subpart C - Characteristics of Hazardous Waste**

#### **§ 261 20 General**

(a) A solid waste, as defined in § 261 2, which is not excluded from regulation as a hazardous waste under § 261 4(b), is a hazardous waste if it exhibits any of the characteristics identified in this Subpart

(b) A hazardous waste which is identified by a characteristic in this Subpart is assigned every EPA Hazardous Waste Number that is applicable as set forth in this Subpart This number must be used in complying with the notification requirements of Part 99 of these regulations and all applicable recordkeeping and reporting requirements under Parts 262 through 266, Part 268, and Part 100

(c) For purposes of this Subpart, the Department will consider a sample obtained using any of the applicable sampling methods specified in Appendix I to be a representative sample within the meaning of Part 260

#### **§ 261 21 Characteristic of ignitability**

(a) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties

(1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point less than 60°C (140°F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80 (incorporated by reference, see § 260 11), or a Setaflash Closed Cup Tester, using the test method specified in ASTM standard D-3278-78 (incorporated by reference, see § 260 11), or a Miniflash Continuously Closed Cup Tester, using the test method specified in ASTM D- 6450-99 (incorporated by reference, see § 260 11), or as determined by an equivalent test method approved by the Department under the procedures set forth in §§ 260 20 and 260 21

(2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard

(3) It is an ignitable compressed gas as defined in 49 CFR § 173 300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Department under §§ 260 20 and 260 21



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(4) It is an oxidizer as defined in 49 CFR § 173 127

(b) A solid waste that exhibits the characteristic of ignitability has the EPA Hazardous Waste Number of D001

**§ 261 22 Characteristic of corrosivity**

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using Method 9040 in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, "EPA Publication SW-846, as incorporated by reference in § 260 11 of these regulations

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, "EPA Publication SW-846, as incorporated by reference in § 260 11 of these regulations

(b) A solid waste that exhibits the characteristic of corrosivity has the EPA Hazardous Waste Number of D002

**§ 261 23 Characteristic of reactivity**

(a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties

(1) It is normally unstable and readily undergoes violent change without detonating

(2) It reacts violently with water

(3) It forms potentially explosive mixtures with water

(4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment

(5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment

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(6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement

(7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure

(8) It is a forbidden explosive as defined in 49 CFR § 173.54, or a Class 1, Division 1.1, 1.2, or 1.3 explosive as defined in 49 CFR § 173.50

(b) A solid waste that exhibits the characteristic of reactivity, has the EPA Hazardous Waste Number of D003

**§ 261.24 Toxicity Characteristic**

(a) A solid waste exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, Test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, as incorporated by reference in § 260.11 of these regulations, the extract from a representative sample of the waste contains any of the contaminants listed in Table 1 at a concentration equal to or greater than the respective value given in that Table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract for the purpose of this section.

(b) A solid waste that exhibits the characteristic of toxicity has the EPA Hazardous Waste Number specified in Table 1 which corresponds to the toxic contaminant causing it to be hazardous.

Table 1 -- Maximum Concentration of Contaminants for the Toxicity

Characteristic EPA No <sup>1</sup>	HW	Contaminant	CAS No <sup>2</sup>	Regulatory Level (mg/L)
D004		Arsenic	7440-38-2	5 0
D005		Barium	7440-39-3	100 0
D018		Benzene	71-43-2	0 5
D006		Cadmium	7440-43-9	1 0
D019		Carbon tetrachloride	56-23-5	0 5
D020		Chlordane	57-74-9	0 03
D021		Chlorobenzene	108-90-7	100 0
D022		Chloroform	67-66-3	6 0
D007		Chromium	7440-47-3	5 0
D023		o-Cresol	95-48-7	<sup>4</sup> 200 0
D024		m-Cresol	108-39-4	<sup>4</sup> 200 0
D025		p-Cresol	106-44-5	<sup>4</sup> 200 0
D026		Cresol		<sup>4</sup> 200 0
D016		2,4-D	94-75-7	10 0
D027		1,4-Dichlorobenzene	106-46-7	7 5
D028		1,2-Dichloroethane	107-06-2	0 5
D029		1,1-Dichloroethylene	75-35-4	0 7
D030		2,4-Dinitrotoluene	121-14-2	<sup>3</sup> 0 13
D012		Endrin	72-20-8	0 02
D031		Heptachlor (and its epoxide)	76-44-8	0 008
D032		Hexachlorobenzene	118-74-1	<sup>3</sup> 0 13
D033		Hexachlorobutadiene	87-68-3	0 5
D034		Hexachloroethane	67-72-1	3 0
D008		Lead	7439-92-1	5 0
D013		Lindane	58-89-9	0 4
D009		Mercury	7439-97-6	0 2
D014		Methoxychlor	72-43-5	10 0
D035		Methyl ethyl ketone	78-93-3	200 0
D036		Nitrobenzene	98-95-3	2 0
D037		Pentachlorophenol	87-86-5	100 0
D038		Pyridine	110-86-1	<sup>3</sup> 5 0
D010		Selenium	7782-49-2	1 0
D011		Silver	7440-22-4	5 0

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D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

<sup>1</sup> Hazardous waste number

<sup>2</sup> Chemical abstracts service number

<sup>3</sup> Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

<sup>4</sup> If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

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**Subpart D - Lists of Hazardous Wastes**

**§ 261 30 General**

(a) A solid waste is a hazardous waste if it is listed in this Subpart, unless it has been excluded from this list under §§ 260 20 and 260 22

(b) The Department will indicate its basis for listing the classes or types of wastes listed in this Subpart by employing one or more of the following Hazard Codes

Ignitable Waste	(I)
Corrosive Waste	(C)
Reactive Waste	(R)
Toxicity Characteristic Waste	(E)
Acute Hazardous Waste	(H)
Toxic Waste	(T)

Appendix VII identifies the constituent which caused the Department to list the waste as a Toxicity Characteristic Waste (E) or Toxic Waste (T) in §§ 261 31 and 261 32

(c) Each hazardous waste listed in this Subpart is assigned an EPA Hazardous Waste Number which precedes the name of the waste. This number must be used in complying with the notification requirements of CRS 1973, 25-15-301(2)(a) and (b) and certain recordkeeping and reporting requirements under Parts 262 through 266, Part 268, and Part 100

(d) The following hazardous wastes listed in § 261 31 or § 261 32 are subject to the exclusion limits for acutely hazardous wastes established in § 261 5 EPA Hazardous Wastes Nos F020, F021, F022, F023, F026, F027

## § 261 31 Hazardous wastes from non-specific sources

(a) The following solid wastes are listed hazardous wastes from non-specific sources unless they are excluded under §§ 260 20 and 260 22 and listed in Appendix IX

Industry and EPA hazardous waste No	Hazardous waste	Hazard code
Generic		
F001	The following spent halogenated solvents used in degreasing Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons, all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)
F002	The following spent halogenated solvents Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane, all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)
F003	The following spent non-halogenated solvents Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol, all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents, and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(I)*
F004	The following spent non-halogenated solvents Cresols and cresylic acid, and nitrobenzene, all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)
F005	The following spent non-halogenated solvents Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane, all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004, and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(I,T)
F006	Wastewater treatment sludges from electroplating operations except from the following processes (1) Sulfuric acid anodizing of aluminum, (2) tin plating on carbon steel, (3) zinc plating (segregated basis) on carbon steel, (4) aluminum or zinc-aluminum plating on carbon steel, (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel, and (6) chemical etching and milling of aluminum	(T)

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Industry and EPA hazardous waste No	Hazardous waste	Hazard code
F007	Spent cyanide plating bath solutions from electroplating operations	(R, T)
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process	(R, T)
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process	(R, T)
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process	(R, T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations	(R, T)
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process	(T)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process	(T)
F020	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives (This listing does not include wastes from the production of Hexachlorophene from highly purified 2,4,5-trichlorophenol )	(H)
F021	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives	(H)
F022	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions	(H)
F023	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols (This listing does not include wastes from equipment used only for the production or use of Hexachlorophene from highly purified 2,4,5-trichlorophenol )	(H)
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution (This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in § 261 31 or § 261 32 )	(T)
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution	(T)

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Industry and EPA hazardous waste No	Hazardous waste	Hazard code
F026	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions	(H)
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols (This listing does not include formulations containing Hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component)	(H)
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Nos F020, F021, F022, F023, F026, and F027	(T)
F032	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with § 261 35 of these regulations or potentially cross-contaminated wastes that are otherwise currently regulated as hazardous wastes (i.e., F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations) This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)
F034	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)
F035	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)
F037	Petroleum refinery primary oil/water/solids separation sludge-Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries Such sludges include, but are not limited to, those generated in oil/water/solids separators, tanks and impoundments, ditches and other conveyances, sumps, and stormwater units receiving dry weather flow Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in § 261 31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing This listing does include residuals generated from processing or recycling oil-bearing hazardous secondary materials excluded under § 261 4(a)(13)(i), if those residuals are to be disposed of	(T)
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge-Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries Such wastes include, but are	(T)



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Industry and EPA hazardous waste No	Hazardous waste	Hazard code
F039	<p>not limited to, all sludges and floats generated in induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in § 261 31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing</p> <p>Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under subpart D of this part (Leachate resulting from the disposal of one or more of the following EPA Hazardous Wastes and no other Hazardous Wastes retains its EPA Hazardous Waste Number(s) F020, F021, F022, F026, F027, and/or F028 )</p>	(T)

FOOTNOTE \*(I,T) should be used to specify mixtures containing ignitable and toxic constituents

(b) Listing Specific Definitions

(1) For the purposes of the F037 and F038 listings, oil/water/solids is defined as oil and/or water and/or solids

(2)(i) For the purposes of the F037 and F038 listings, aggressive biological treatment units are defined as units which employ one of the following four treatment methods: activated sludge, trickling filter, rotating biological contactor for the continuous accelerated biological oxidation of wastewaters, or high-rate aeration. High-rate aeration is a system of surface impoundments or tanks, in which intense mechanical aeration is used to completely mix the wastes, enhance biological activity, and (A) the units employ a minimum of 6 hp per million gallons of treatment volume, and either (B) the hydraulic retention time of the unit is no longer than 5 days, or (C) the hydraulic retention time is no longer than 30 days and the unit does not generate a sludge that is a hazardous waste by the Toxicity Characteristic

(ii) Generators and treatment, storage, and disposal facilities have the burden of proving that their sludges are exempt from listing as F037 and F038 wastes under this definition. Generators and treatment, storage, and disposal facilities must maintain, in their operating or other onsite records, documents and data sufficient to prove that (A) the unit is an aggressive biological treatment unit as defined in this subsection, and (B) the sludges sought to be exempted from the definitions of F037 and/or F038 were actually generated in the aggressive biological treatment unit

(3)(i) For the purposes of the F037 listing, sludges are considered to be generated at the moment of deposition in the unit, where deposition is defined as at least a temporary cessation of lateral particle movement

(ii) For the purpose of the F038 listing, (A) sludges are considered to be generated at the moment of deposition in the unit, where deposition is defined as at least a temporary cessation of lateral particle movement and (B) floats are considered to be generated at the moment they are formed in the top of the unit

## § 261.32 Hazardous Waste from Specific Sources

The following solid wastes are listed hazardous wastes from specific sources unless they are excluded under §§ 260.20 and 260.22 and listed in Appendix IX

Industry and EPA hazardous waste No	Hazardous waste	Hazard code
Wood preservation		
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol	(T)
Inorganic pigments		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments	(T)
K003	Wastewater treatment sludge from the production of molybdate orange pigments	(T)
K004	Wastewater treatment sludge from the production of zinc yellow pigments	(T)
K005	Wastewater treatment sludge from the production of chrome green pigments	(T)
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated)	(T)
K007	Wastewater treatment sludge from the production of iron blue pigments	(T)
K008	Oven residue from the production of chrome oxide green pigments	(T)
Organic chemicals		
K009	Distillation bottoms from the production of acetaldehyde from ethylene	(T)
K010	Distillation side cuts from the production of acetaldehyde from ethylene	(T)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile	(R, T)
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile	(R, T)
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile	(T)
K015	Still bottoms from the distillation of benzyl chloride	(T)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride	(T)
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin	(T)
K018	Heavy ends from the fractionation column in ethyl chloride production	(T)
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production	(T)
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production	(T)

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Industry and EPA hazardous waste No	Hazardous waste	Hazard code
K021	Aqueous spent antimony catalyst waste from fluoromethanes production	(T)

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Industry and EPA hazardous waste No	Hazardous waste	Hazard code
K022	Distillation bottom tars from the production of phenol/acetone from cumene	(T)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene	(T)
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene	(T)
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene	(T)
K026	Stripping still tails from the production of methy ethyl pyridines	(T)
K027	Centrifuge and distillation residues from toluene diisocyanate production	(R, T)
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane	(T)
K029	Waste from the product steam stripper in the production of 1,1,1-trichloroethane	(T)
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene	(T)
K083	Distillation bottoms from aniline production	(T)
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes	(T)
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene	(T)
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene	(T)
K095	Distillation bottoms from the production of 1,1,1-trichloroethane	(T)
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane	(T)
K103	Process residues from aniline extraction from the production of aniline	(T)
K104	Combined wastewater streams generated from nitrobenzene/aniline production	(T)
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes	(T)
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	(C,T)
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	(I,T)
K109	Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	(T)
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	(T)
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene	(C,T)

Industry and EPA hazardous waste No	Hazardous waste	Hazard code
K112	Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene	(T)
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene	(T)
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene	(T)
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene	(T)
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine	(T)
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene	(T)
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	(T)
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	(T)
K149	Distillation bottoms from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups, (This waste does not include still bottoms from the distillation of benzyl chloride)	(T)
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups	(T)
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups	(T)
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate)	(T)
K157	Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate)	(T)
K158	Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate)	(T)
K159	Organics from the treatment of thiocarbamate wastes	(T)
K161	Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts (This listing does not include K125 or K126)	(R,T)

Industry and EPA hazardous waste No	Hazardous waste	Hazard code
K174	Wastewater treatment sludges from the production of ethylene dichloride or vinyl chloride monomer (including sludges that result from commingled ethylene dichloride or vinyl chloride monomer wastewater and other wastewater), unless the sludges meet the following conditions (i) they are disposed of in a subtitle C or non-hazardous landfill licensed or permitted by the state or federal government, (ii) they are not otherwise placed on the land prior to final disposal, and (iii) the generator maintains documentation demonstrating that the waste was either disposed of in an on-site landfill or consigned to a transporter or disposal facility that provided a written commitment to dispose of the waste in an off-site landfill. Respondents in any action brought to enforce the requirements of subtitle C must, upon a showing by the government that the respondent managed wastewater treatment sludges from the production of vinyl chloride monomer or ethylene dichloride, demonstrate that they meet the terms of the exclusion set forth above. In doing so, they must provide appropriate documentation (e.g., contracts between the generator and the landfill owner/operator, invoices documenting delivery of waste to landfill, etc.) that the terms of the exclusion were met.	(T)
K175	Wastewater treatment sludges from the production of vinyl chloride monomer using mercuric chloride catalyst in an acetylene-based process	(T)
Inorganic chemicals		
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used	(T)
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production	(T)
K106	Wastewater treatment sludge from the mercury cell process in chlorine production	(T)
K176	Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metal or crude antimony oxide)	(E)
K177	Slag from the production of antimony oxide that is speculatively accumulated or disposed, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide)	(T)
K178	Residues from manufacturing and manufacturing-site storage of ferric chloride from acids formed during the production of titanium dioxide using the chloride-ilmenite process	(T)
Pesticides		
K031	By-product salts generated in the production of MSMA and cacodylic acid	(T)
K032	Wastewater treatment sludge from the production of chlordane	(T)
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane	(T)
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane	(T)
K035	Wastewater treatment sludges generated in the production of creosote	(T)
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton	(T)
K037	Wastewater treatment sludges from the production of disulfoton	(T)
K038	Wastewater from the washing and stripping of phorate production	(T)

Industry and EPA hazardous waste No	Hazardous waste	Hazard code
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate	(T)
K040	Wastewater treatment sludge from the production of phorate	(T)
K041	Wastewater treatment sludge from the production of toxaphene	(T)
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T	(T)
K043	2,6-Dichlorophenol waste from the production of 2,4-D	(T)
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane	(T)
K098	Untreated process wastewater from the production of toxaphene	(T)
K099	Untreated wastewater from the production of 2,4-D	(T)
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenedisithiocarbamic acid and its salt	(T)
K124	Reactor vent scrubber water from the production of ethylenedisithiocarbamic acid and its salts	(C, T)
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenedisithiocarbamic acid and its salts	(T)
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenedisithiocarbamic acid and its salts	(T)
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide	(C,T)
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide	(T)
Explosives		
K044	Wastewater treatment sludges from the manufacturing and processing of explosives	(R)
K045	Spent carbon from the treatment of wastewater containing explosives	(R)
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds	(T)
K047	Pink/red water from TNT operations	(R)
Petroleum refining		
K048	Dissolved air flotation (DAF) float from the petroleum refining industry	(T)
K049	Slop oil emulsion solids from the petroleum refining industry	(T)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry	(T)



Industry and EPA hazardous waste No	Hazardous waste	Hazard code
K051	API separator sludge from the petroleum refining industry	(T)
K052	Tank bottoms (leaded) from the petroleum refining industry	(T)
K169	Crude oil storage tank sediment from petroleum refining operations	(T)
K170	Clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations	(T)
K171	Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)	(I,T)
K172	Spent Hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)	(I,T)
Iron and steel		
K061	Emission control dust/sludge from the primary production of steel in electric furnaces	(T)
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332)	(C,T)
Primary aluminum		
K088	Spent potliners from primary aluminum reduction	(T)
Secondary lead		
K069	Emission control dust/sludge from secondary lead smelting (Note: This listing is stayed administratively for sludge generated from secondary acid scrubber systems. The stay will remain in effect until further administrative action is taken. If EPA takes further action affecting this stay, the Hazardous Waste Commission will publish a notice of the action in the Colorado Register)	(T)
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting	(T)
Veterinary pharmaceuticals		
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)
Ink formulation		

Industry and EPA hazardous waste No	Hazardous waste	Hazard code
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead	(T)
Coking		
K060	Ammonia still lime sludge from coking operations	(T)
K087	Decanter tank tar sludge from coking operations	(T)
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke by-products produced from coal. This listing does not include K087 (decanter tank tar sludges from coking operations)	(T)
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal	(T)
K143	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal	(T)
K144	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal	(T)
K145	Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal	(T)
K147	Tar storage tank residues from coal tar refining	(T)
K148	Residues from coal tar distillation, including but not limited to, still bottoms	(T)
Military Munitions		
K901	Waste chemical weapons using or containing any chemical compound identified in Appendix VII of Part 261 as the basis for this listing. Residues resulting from treatment of hazardous wastes with the codes P909, P910 and P911 are included in this listing	(H)
K902	Any soil, water, debris, or containers contaminated through contact with waste chemical weapons listed as K901 or hazardous wastes listed as P909, P910 or P911	(H)

**§ 261 33 Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof**

The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded as described in § 261 2(a)(2)(i), when they are mixed with waste oil or used oil or other material and applied to the land for dust suppression or road treatment, when they are otherwise applied to the land in lieu of their original intended use or when they are contained in products that are applied to the land in lieu of their original intended use, or when, in lieu of their original intended use, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel, or when they are residues described in § 261 33(d) and are not recycled in accordance with § 261 2(e) within 90 days of the initial spill event

(a) Any commercial chemical product, or manufacturing chemical intermediate having the generic name listed in paragraphs (e) or (f) of this section

(b) Any off-specification commercial product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in paragraphs (e) or (f) of this section

(c) Any residue remaining in a container or in an inner liner removed from a container that has held any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (e) or (f) of this section, unless the container is empty as defined in § 261 7(b) of these regulations

[Comment Unless the residue is being beneficially used or reused, or legitimately recycled or reclaimed, or being accumulated, stored, transported or treated prior to such use, re-use, recycling or reclamation, EPA considers the residue to be intended for discard, and thus a hazardous waste. An example of a legitimate re-use of the residue would be where the residue remains in the container and the container is used to hold the same commercial chemical product or manufacturing chemical product or manufacturing chemical intermediate it previously held. An example of the discard of the residue would be where the drum is sent to a drum reconditioner who reconditions the drum but discards the residue.]

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(d) Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill into or on any land or water of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (a) through (d) of this section, or any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any off-specification chemical product and manufacturing intermediate which, if it met specifications, would have the generic name listed in paragraphs (e) or (f) of this section

(e) The commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products or manufacturing chemical intermediates referred to in paragraphs (a) through (d) of this section, are identified as acute hazardous wastes (H) and are subject to the small quantity exclusion defined in § 261.5(e)

[Comment For the convenience of the regulated community the primary hazardous properties of these materials have been indicated by the letters T (Toxicity), and R (Reactivity) Absence of a letter indicates that the compound only is listed for acute toxicity ]

These wastes and their corresponding EPA Hazardous Waste Numbers are

Hazardous waste No	Chemical abstracts No	Substance	Common Name
P023	107-20-0	Acetaldehyde, chloro-	Chloroacetaldehyde
P002	591-08-2	Acetamide, N-(aminothioxomethyl)-	1-Acetyl-2-thiourea
P057	640-19-7	Acetamide, 2-fluoro-	Fluoroacetamide
P058	62-74-8	Acetic acid, fluoro-, sodium salt	Fluoroacetic acid, sodium salt
P002	591-08-2	1-Acetyl-2-thiourea	Same
P003	107-02-8	Acrolein	Same
P070	116-06-3	Aldicarb	Same
P203	1646-88-4	Aldicarb sulfone	Same
P004	309-00-2	Aldrin	Same
P005	107-18-6	Allyl alcohol	Same
P006	20859-73-8	Aluminum phosphide (R,T)	Same
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol	Muscimol
P008	504-24-5	4-Aminopyridine	Same
P009	131-74-8	Ammonium picrate (R)	Same
P119	7803-55-6	Ammonium vanadate	Ammonium metavanadate
P099	506-61-6	Argentate(1-), bis(cyano-C)-, potassium	Potassium silver cyanide
P010	7778-39-4	Arsenic acid $H_3AsO_4$	Arsenic acid
P012	1327-53-3	Arsenic oxide $As_2O_3$	Arsenic trioxide
P011	1303-28-2	Arsenic oxide $As_2O_5$	Arsenic pentoxide
P011	1303-28-2	Arsenic pentoxide	Same
P012	1327-53-3	Arsenic trioxide	Same
P038	692-42-2	Arsine, diethyl-	Diethylarsine
P036	696-28-6	Arsonous dichloride, phenyl-	Dichlorophenylarsine
P054	151-56-4	Aziridine	Ethyleneimine
P067	75-55-8	Aziridine, 2-methyl-	Propyleneimine
P013	542-62-1	Barium cyanide	Same
P024	106-47-8	Benzenamine, 4-chloro-	4-Chloroaniline

Hazardous waste No	Chemical abstracts No	Substance	Common Name
P077	100-01-6	Benzenamine, 4-nitro-	4-Nitroaniline
P028	100-44-7	Benzene, (chloromethyl)-	Benzyl chloride
P042	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-	Epinephrine
P046	122-09-8	Benzeneethanamine, alpha,alpha-dimethyl-	Phentermine
P014	108-98-5	Benzenethiol	Thiophenol
P127	1563-66-2	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate	Carbofuran
P188	57-64-7	Benzoic acid, 2-hydroxy-, compd with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1)	Physostigmine, salicylate
P001	181-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations greater than 0.3%	Warfarin salts, when present at concentrations greater than 0.3%
P028	100-44-7	Benzyl chloride	Same
P015	7440-41-7	Beryllium powder	Same
P017	598-31-2	Bromoacetone	Same
P018	357-57-3	Brucine	Same
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[methylamino]carbonyl oxime	Thiofanox
P021	592-01-8	Calcium cyanide	Same
P021	592-01-8	Calcium cyanide Ca(CN) <sub>2</sub>	Calcium cyanide
P189	55285-14-8	Carbamic acid, [(dibutylamino)-thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester	Carbosulfan
P191	644-64-4	Carbamic acid, dimethyl-, 1-[(dimethylamino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester	Dimetilan
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester	Isolan
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenyl ester	Metolcarb
P127	1563-66-2	Carbofuran	Same
P022	75-15-0	Carbon disulfide	Same

Hazardous waste No	Chemical abstracts No	Substance	Common Name
P095	75-44-5	Carbonic dichloride	Phosgene
P189	55285-14-8	Carbosulfan	Same
P023	107-20-0	Chloroacetaldehyde	Same
P024	106-47-8	p-Chloroaniline	4-Chloroaniline
P026	5344-82-1	1-(o-Chlorophenyl)thiourea	2-Chlorophenylthiourea
P027	542-76-7	3-Chloropropionitrile	Same
P029	544-92-3	Copper cyanide	Same
P029	544-92-3	Copper cyanide Cu(CN)	Copper cyanide
P202	64-00-6	m-Cumenyl methylcarbamate	Phenol, 3(1-methylethyl)-, methylcarbamate
P030	57-12-5	Cyanides (soluble cyanide salts), not otherwise specified	Same
P031	460-19-5	Cyanogen	Same
P033	506-77-4	Cyanogen chloride	Same
P033	506-77-4	Cyanogen chloride (CN)Cl	Cyanogen chloride
P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol	2,4-Dinitro-6-cyclohexylphenol
P016	542-88-1	Dichloromethyl ether	Bis(chloromethyl) ether
P036	696-28-6	Dichlorophenylarsine	Same
P037	60-57-1	Dieldrin	Same
P038	692-42-2	Diethylarsine	Same
P041	311-45-5	Diethyl-p-nitrophenyl phosphate	Paraoxon
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate	Thionazin
P043	55-91-4	Diisopropylfluorophosphate (DFP)	Same
P004	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-	Aldrin
P060	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-	Isodrin
P037	60-57-1	2,7,3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-	Dieldrin

Hazardous waste No	Chemical abstracts No	Substance	Common Name
P051	<sup>1</sup> 72-20-8	2,7 3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta, 7aalpha)-, & metabolites	Endrin
P044	60-51-5	Dimethoate	Same
P046	122-09-8	alpha,alpha-Dimethylphenethylamine	Phentemine
P191	644-64-4	Dimetilan	Same
P047	<sup>1</sup> 534-52-1	4,6-Dinitro-o-cresol, & salts	Same
P048	51-28-5	2,4-Dinitrophenol	Same
P020	88-85-7	Dimoseb	Same
P085	152-16-9	Diphosphoramidate, octamethyl-	Schradan
P111	107-49-3	Diphosphoric acid, tetraethyl ester	Tetraethyl pyrophosphate
P039	298-04-4	Disulfoton	Same
P049	541-53-7	Dithiobiuret	2,4-Dithiobiuret
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)-carbonyl]oxime	Tirpate
P050	115-29-7	Endosulfan	Same
P088	145-73-3	Endothall	Same
P051	72-20-8	Endrin	Same
P051	72-20-8	Endrin, & metabolites	Same
P042	51-43-4	Epinephrine	Same
P031	460-19-5	Ethanedinitrile	Cyanogen
P066	16752-77-5	Ethanimidothioic acid, N-[[[(methylamino)carbonyl]oxy]-, methyl ester	Methomyl
P194	23135-22-0	Ethanimidothioic acid, 2-(dimethylamino)-N-[[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester	Oxamyl
P101	107-12-0	Ethyl cyanide	Propionitrile
P054	151-56-4	Ethyleneimine	Same
P097	52-85-7	Famphur	Same



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Hazardous waste No	Chemical abstracts No	Substance	Common Name
P056	7782-41-4	Fluorine	Same
P057	640-19-7	Fluoroacetamide	Same
P058	62-74-8	Fluoroacetic acid, sodium salt	Sodium fluoroacetate
P198	23422-53-9	Formetanate hydrochloride	Same
P197	17702-57-7	Formparanate	Same
P065	628-86-4	Fulminic acid, mercury(2+) salt (R,T)	Mercury fulminate
P059	76-44-8	Heptachlor	Same
P062	757-58-4	Hexaethyl tetraphosphate	Same
P116	79-19-6	Hydrazinecarbothioamide	1-Amino-2-thiourea
P068	60-34-4	Hydrazine, methyl-	Methyl hydrazine
P063	74-90-8	Hydrocyanic acid	Hydrogen cyanide
P063	74-90-8	Hydrogen cyanide	Same
P096	7803-51-2	Hydrogen phosphide	Phosphine
P060	465-73-6	Isodrin	Same
P192	119-38-0	Isolan	Same
P202	64-00-6	3-Isopropylphenyl N-methylcarbamate	m-Cumenyl methylcarbamate
P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-	Muscimol
P196	15339-36-3	Manganese, bis(dimethylcarbamodithioato-S,S')	Manganese dimethyldithiocarbamate
P196	15339-36-3	Manganese dimethyldithiocarbamate	Same
P092	62-38-4	Mercury, (acetato-O)phenyl-	Phenylmercury acetate
P065	628-86-4	Mercury fulminate (R,T)	Same
P082	62-75-9	Methanamine, N-methyl-N-nitroso-	N-Nitrosodimethylamine
P064	624-83-9	Methane, isocyanato-	Methyl isocyanate
P016	542-88-1	Methane, oxybis(chloro-	Bis(chloromethyl) ether
P112	509-14-8	Methane, tetranitro- (R)	Tetranitromethane
P118	75-70-7	Methanethiol, trichloro-	Trichloromethyl mercaptan
P198	23422-53-9	Methanimidamide, N,N-dimethyl-N'-[3-[(methylamino)-carbonyl]oxyphenyl]-, monohydrochloride	Formetanate hydrochloride

Hazardous waste No	Chemical abstracts No	Substance	Common Name
P197	17702-57-7	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[(methylamino)carbonyl]oxy]phenyl]-	Formparanate
P050	115-29-7	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10- hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	Endosulfan
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro- 3a,4,7,7a-tetrahydro-	Heptachlor
P199	2032-65-7	Methiocarb	Same
P066	16752-77-5	Methomyl	Same
P068	60-34-4	Methyl hydrazine	Same
P064	624-83-9	Methyl isocyanate	Same
P069	75-86-5	2-Methylactonitrile	Acetone cyanohydrin
P071	298-00-0	Methyl parathion	Same
P190	1129-41-5	Metolcarb	Same
P128	315-18-4	Mexacarbate	Same
P072	86-88-4	alpha-Naphthylthiourea	Same
P073	13463-39-3	Nickel carbonyl	Same
P073	13463-39-3	Nickel carbonyl Ni(CO) <sub>4</sub> , (T-4)-	Nickel carbonyl
P074	557-19-7	Nickel cyanide	Same
P074	557-19-7	Nickel cyanide Ni(CN) <sub>2</sub>	Nickel cyanide
P075	154-11-5	Nicotine, & salts	Same
P076	10102-43-9	Nitric oxide	Same
P077	100-01-6	p-Nitroaniline	Same
P078	10102-44-0	Nitrogen dioxide	Same
P076	10102-43-9	Nitrogen oxide NO	Nitric Oxide
P078	10102-44-0	Nitrogen oxide NO <sub>2</sub>	Nitrogen dioxide
P081	55-63-0	Nitroglycerine (R)	Nitroglycerin
P082	62-75-9	N-Nitrosodimethylamine	Same
P084	4549-40-0	N-Nitrosomethylvinylamine	Same
P085	152-16-9	Octamethylpyrophosphoramide	Schradan

Hazardous waste No	Chemical abstracts No	Substance	Common Name
P087	20816-12-0	Osmium oxide OsO <sub>4</sub> , (T-4)-	Osmium tetroxide
P087	20816-12-0	Osmium tetroxide	Same
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	Endothall
P194	23135-22-0	Oxamyl	Same
P089	56-38-2	Parathion	Same
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-	2,4-Dinitro-6-cyclohexylphenol
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)	Mexacarbate
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate	Methiocarb
P048	51-28-5	Phenol, 2,4-dinitro-	2,4-Dinitrophenol
P047	<sup>1</sup> 534-52-1	Phenol, 2-methyl-4,6-dinitro-, & salts	4,6-Dinitro-o-cresol, & salts
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate	m-Cumenyl methylcarbamate
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate	Promecarb
P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	Dinoseb
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)	Ammonium picrate
P092	62-38-4	Phenylmercury acetate	Same
P093	103-85-5	Phenylthiourea	Same
P094	298-02-2	Phorate	Same
P095	75-44-5	Phosgene	Same
P096	7803-51-2	Phosphine	Same
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester	Paraaxon
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester	Disulfoton
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	Phorate
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S [2-(methylamino)-2-oxoethyl] ester	Dimethoate
P043	55-91-4	Phosphorofluoridic acid, bis(1-methylethyl) ester	Diisopropylfluorophosphate (DFP)

Hazardous waste No	Chemical abstracts No	Substance	Common Name
P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	Parathion
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	Thionazin
P097	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester	Famphur
P071	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	Methyl parathion
P204	57-47-6	Physostigmine	Same
P188	57-64-7	Physostigmine salicylate	Same
P110	78-00-2	Plumbane, tetraethyl-	Tetraethyl lead
P098	151-50-8	Potassium cyanide	Same
P098	151-50-8	Potassium cyanide K(CN)	Potassium cyanide
P099	506-61-6	Potassium silver cyanide	Same
P201	2631-37-0	Promecarb	Same
P203	1646-88-4	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino) carbonyl] oxime	Aldicarb sulfone
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	Aldicarb
P101	107-12-0	Propanenitrile	Propionitrile
P027	542-76-7	Propanenitrile, 3-chloro-	3-Chloropropionitrile
P069	75-86-5	Propanenitrile, 2-hydroxy-2-methyl-	Acetone cyanohydrin
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)	Nitroglycerin
P017	598-31-2	2-Propanone, 1-bromo-	Bromoacetone
P102	107-19-7	Propargyl alcohol	Same
P003	107-02-8	2-Propenal	Acrolein
P005	107-18-6	2-Propen-1-ol	Allyl alcohol
P067	75-55-8	1,2-Propylenimine	Same
P102	107-19-7	2-Propyn-1-ol	Propargyl alcohol
P008	504-24-5	4-Pyridinamine	4-aminopyridine
P075	154-11-5	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, &	Nicotine, & Nicotine salts

Hazardous waste No	Chemical abstracts No	Substance	Common Name
		salts	
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-	Physostigmine
P114	12039-52-0	Selenious acid, dithallium(1+) salt	Thallium selenide
P103	630-10-4	Selenourea	Same
P104	506-64-9	Silver cyanide	Same
P104	506-64-9	Silver cyanide Ag(CN)	Silver cyanide
P105	26628-22-8	Sodium azide	Same
P106	143-33-9	Sodium cyanide	Same
P106	143-33-9	Sodium cyanide Na(CN)	Sodium cyanide
P108	<sup>1</sup> 57-24-9	Strychnidin-10-one, & salts	Strychnine, & salts
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-	Brucine
P108	<sup>1</sup> 57-24-9	Strychnine, & salts	Same
P115	7446-18-6	Sulfuric acid, dithallium(1+) salt	Thalious sulfate
P109	3689-24-5	Tetraethyldithiopyrophosphate	Dithion
P110	78-00-2	Tetraethyl lead	Same
P111	107-49-3	Tetraethyl pyrophosphate	Same
P112	509-14-8	Tetranitromethane (R)	Same
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester	Hexaethyl tetraphosphate
P113	1314-32-5	Thallic oxide	Same
P113	1314-32-5	Thallium oxide Tl <sub>2</sub> O <sub>3</sub>	Thallic oxide
P114	12039-52-0	Thallium(I) selenite	Thallium selenide
P115	7446-18-6	Thallium(I) sulfate	Same
P109	3689-24-5	Thiodiphosphoric acid, tetraethyl ester	Dithion
P045	39196-18-4	Thiofanox	Same
P049	541-53-7	Thioimidodicarbonic diamide [(H <sub>2</sub> N)C(S)] <sub>2</sub> NH	2,4-Dithiobiuret
P014	108-98-5	Thiophenol	Same
P116	79-19-6	Thiosemicarbazide	1-amino-2-thiourea

Hazardous waste No	Chemical abstracts No	Substance	Common Name
P026	5344-82-1	Thiourea, (2-chlorophenyl)-	N-(2-Chlorophenyl)thiourea
P072	86-88-4	Thiourea, 1-naphthalenyl-	alpha-Naphthylthiourea
P093	103-85-5	Thiourea, phenyl-	1-Phenyl-2-thiourea
P185	26419-73-8	Turpate	Same
P123	8001-35-2	Toxaphene	Same
P118	75-70-7	Trichloromethanethiol	Trichloromethyl mercaptan
P119	7803-55-6	Vanadic acid, ammonium salt	Ammonium metavanadate
P120	1314-62-1	Vanadium oxide $V_2O_5$	Vanadium pentoxide
P120	1314-62-1	Vanadium pentoxide	Same
P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-	N-Nitrosomethylvinylamine
P001	<sup>1</sup> 81-81-2	Warfarin, & salts, when present at concentrations greater than 0.3%	Same
P205	137-30-4	Zinc, bis(dimethylcarbamodithioato-S,S')-	Ziram
P121	557-21-1	Zinc cyanide	Same
P121	557-21-1	Zinc cyanide $Zn(CN)_2$	Zinc cyanide
P122	1314-84-7	Zinc phosphide $Zn_3P_2$ , when present at concentrations greater than 10% (R,T)	Same
P205	137-30-4	Ziram	Same
P909 <sup>2</sup>	505-60-2	bis(2-chloroethyl)sulfide (Residues resulting from treatment of this waste are included in the K901 listing and do not carry the P909 code. Soils, water, debris, or containers contaminated with this waste are included in the K902 listing and do not carry the P909 code.)	Mustard, Mustard Agent, Mustard Gas, H, HD
P910 <sup>2</sup>	505-60-2, 63918-89-8	bis(2-chloroethyl)sulfide and bis(2-chloroethylthio)ethyl ether (Residues resulting from treatment of this waste are included in the K901 listing and do not carry the P910 code. Soils, water, debris, or containers contaminated with this waste are included in the K902 listing and do not carry the P910 code.)	Mustard, Mustard Agent, Mustard Gas, HT, Mustard T
P911	107-44-8	O-isopropyl methylphosphonofluoridate (Residues resulting from treatment of this waste are included in the K901 listing and do	GB, Sarin

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Hazardous waste No	Chemical abstracts No	Substance	Common Name
		not carry the P911 code Soils, water, debris, or containers contaminated with this waste are included in the K902 listing and do not carry the P911 code )	

FOOTNOTE <sup>1</sup>CAS Number given for parent compound only

- <sup>2</sup> H- Mustard made by the Levinstein process, typically has 25% impurities
- HD- Distilled mustard containing 5% impurities
- HT- 60 40 mixture of HD and T
- T- bis(2-chloroethylthio)ethyl ether

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(f) The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in paragraphs (a) through (d) of this section, are identified as toxic wastes (T), unless otherwise designated and are subject to the small quantity generator exclusion defined in § 261.5(a) and (g)

[Comment For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (Toxicity), R (Reactivity), I (Ignitability) and C (Corrosivity) Absence of a letter indicates that the compound is only listed for toxicity ]

These wastes and their corresponding EPA Hazardous Waste Numbers are



Hazardous waste No	Chemical abstracts No	Substance	Common Name
U394	30558-43-1	A2213	Same
U001	75-07-0	Acetaldehyde (I)	Same
U034	75-87-6	Acetaldehyde, trichloro-	Chloral
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-	Phenacetin
U005	53-96-3	Acetamide, N-9H-fluoren-2-yl-	2-Acetylaminofluorene
U240	194-75-7	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters	2,4-D
U112	141-78-6	Acetic acid ethyl ester (I)	Ethyl acetate
U144	301-04-2	Acetic acid, lead(2+) salt	Lead acetate
U214	563-68-8	Acetic acid, thallium(1+) salt	Thallium (I) acetate
see F027	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	2,4,5-T
U002	67-64-1	Acetone (I)	Same
U003	75-05-8	Acetonitrile (I,T)	Same
U004	98-86-2	Acetophenone	Same
U005	53-96-3	2-Acetylaminofluorene	Same
U006	75-36-5	Acetyl chloride (C,R,T)	Same
U007	79-06-1	Acrylamide	Same
U008	79-10-7	Acrylic acid (I)	Same
U009	107-13-1	Acrylonitrile	Same
U011	61-82-5	Amitrole	Same
U012	62-53-3	Aniline (I,T)	Same
U136	75-60-5	Arsinic acid, dimethyl-	Dimethylarsenic acid
U014	492-80-8	Auramine	Same
U015	115-02-6	Azaserine	Same
U010	50-07-7	Azirino[2',3' 3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]]-	Mitomycin C

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Hazardous waste No	Chemical abstracts No	Substance	Common Name
U280	101-27-9	Barban	Same
U278	22781-23-3	Bendiocarb	Same
U364	22961-82-6	Bendiocarb phenol	Same
U271	17804-35-2	Benomyl	Same
U157	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	3-Methylcholanthrene
U016	225-51-4	Benz[c]acridine	Same
U017	98-87-3	Benzal chloride	Same
U192	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	Pronamide
U018	56-55-3	Benz[a]anthracene	Same
U094	57-97-6	Benz[a]anthracene, 7,12-dimethyl-	7,12-Dimethylbenz[a]anthracene
U012	62-53-3	Benzenamine (I,T)	Aniline
U014	492-80-8	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl-	Auramine
U049	3165-93-3	Benzenamine, 4-chloro-2-methyl-, hydrochloride	4-Chloro-o-toluidine hydrochloride
U093	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	4-(Dimethylamino)azobenzene
U328	95-53-4	Benzenamine, 2-methyl-	2-aminotoluene
U353	106-49-0	Benzenamine, 4-methyl-	4-aminotoluene
U158	101-14-4	Benzenamine, 4,4'-methylenebis[2-chloro-	4,4'-Methylenebis(2-chloroaniline)
U222	636-21-5	Benzenamine, 2-methyl-, hydrochloride	2-Methylaniline hydrochloride
U181	99-55-8	Benzenamine, 2-methyl-5-nitro-	5-Nitro-o-toluidine
U019	71-43-2	Benzene (I,T)	Same
U038	510-15-6	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	Chlorobenzilate
U030	101-55-3	Benzene, 1-bromo-4-phenoxy-	4-Bromophenyl phenyl ether
U035	305-03-3	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	Chlorambucil
U037	108-90-7	Benzene, chloro-	Chlorobenzene
U221	25376-45-8	Benzenediamine, ar-methyl-	Toluenediamine
U028	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-	Diethylhexyl phthalate

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Hazardous waste No	Chemical abstracts No	Substance	Common Name
		ethylhexyl) ester	
U069	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	Dibutyl phthalate
U088	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	Diethyl phthalate
U102	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	Dimethyl phthalate
U107	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	D1-n-octyl phthalate
U070	95-50-1	Benzene, 1,2-dichloro-	1,2-Dichlorobenzene
U071	541-73-1	Benzene, 1,3-dichloro-	1,3-Dichlorobenzene
U072	106-46-7	Benzene, 1,4-dichloro-	1,4-Dichlorobenzene
U060	72-54-8	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	DDD

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U017	98-87-3	Benzene, (dichloromethyl)-	Benzal chloride
U223	26471-62-5	Benzene, 1,3-diisocyanatomethyl- (R,T)	Toluene diisocyanate
U239	1330-20-7	Benzene, dimethyl- (I,T)	Xylene
U201	108-46-3	1,3-Benzenediol	Resorcinol
U127	118-74-1	Benzene, hexachloro-	Hexachlorobenzene
U056	110-82-7	Benzene, hexahydro- (I)	Cyclohexane
U220	108-88-3	Benzene, methyl-	Toluene
U105	121-14-2	Benzene, 1-methyl-2,4-dinitro-	2,4-Dinitrotoluene
U106	606-20-2	Benzene, 2-methyl-1,3-dinitro-	2,6-Dinitrotoluene
U055	98-82-8	Benzene, (1-methylethyl)- (I)	Cumene
U169	98-95-3	Benzene, nitro-	Nitrobenzene
U183	608-93-5	Benzene, pentachloro-	Pentachlorobenzene
U185	82-68-8	Benzene, pentachloronitro-	Pentachloronitrobenzene (PCNB)
U020	98-09-9	Benzenesulfonic acid chloride (C,R)	Benzenesulfonyl chloride
U020	98-09-9	Benzenesulfonyl chloride (C,R)	Same
U207	95-94-3	Benzene, 1,2,4,5-tetrachloro-	1,2,4,5-Tetrachlorobenzene
U061	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	DDT
U247	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-	Methoxychlor
U023	98-07-7	Benzene, (trichloromethyl)-	Benzotrichloride
U234	99-35-4	Benzene, 1,3,5-trinitro-	1,3,5-Trinitrobenzene
U021	92-87-5	Benzidine	Same
U202	<sup>1</sup> 81-07-2	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts	Saccharin
U278	22781-23-3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate	Bendiocarb
U364	22961-82-6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-	Bendiocarb phenol
U203	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-	Safrole
U141	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	Isosafrole
U090	94-58-6	1,3-Benzodioxole, 5-propyl-	Dihydrosafrole
U367	1563-38-8	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl	Carbofuran phenol
U064	189-55-9	Benzo[ <i>rst</i> ]pentaphene	Dibenzo[ <i>a,i</i> ]pyrene
U248	<sup>1</sup> 81-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations of 0.3% or less	Warfarin
U022	50-32-8	Benzo[ <i>a</i> ]pyrene	Same

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U197	106-51-4	p-Benzoquinone	1,4-Benzoquinone
U023	98-07-7	Benzotrìchloride (C,R,T)	Same
U085	1464-53-5	2,2'-Bioxirane	1,2 3,4-Diepoxybutane
U021	92-87-5	[1,1'-Biphenyl]-4,4'-diamine	Benzidine
U073	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	3,3'-Dichlorobenzidine
U091	119-90-4	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-	3,3'-Dimethoxybenzidine
U095	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	3,3'-Dimethylbenzidine
U225	75-25-2	Bromoform	Trìbromomethane
U030	101-55-3	4-Bromophenyl phenyl ether	P-Bromophenyl phenyl ether
U128	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	Hexachloro-1,3-butadiene
U172	924-16-3	1-Butanamine, N-butyl-N-nitroso-	N-N-Dibutylnitrosoamine
U031	71-36-3	1-Butanol (I)	N-Butyl alcohol
U159	78-93-3	2-Butanone (I,T)	Methyl ethyl ketone (MEK)
U160	1338-23-4	2-Butanone, peroxide (R,T)	Methyl ethyl ketone peroxide
U053	4170-30-3	2-Butenal	Crotonaldehyde
U074	764-41-0	2-Butene, 1,4-dichloro- (I,T)	1,4-Dichloro-2-butene
U143	303-34-4	2-Butenoic acid, 2-methyl-, 7-[[[2,3-dihydroxy- 2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]- 2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-	Lasiocarpine
U031	71-36-3	n-Butyl alcohol (I)	Butanol
U136	75-60-5	Cacodylic acid	Same
U032	13765-19-0	Calcium chromate	Same
U372	10605-21-7	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester	Carbendazim
U271	17804-35-2	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester	Benomyl
U280	101-27-9	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester	Barban
U238	51-79-6	Carbamic acid, ethyl ester	Ethyl carbamate (urethane)
U178	615-53-2	Carbamic acid, methylnitroso-, ethyl ester	N-Nitroso-N-methylurethane
U373	122-42-9	Carbamic acid, phenyl-, 1-methylethyl ester	Propham

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Hazardous waste No	Chemical abstracts No	Substance	Common Name
U409	23564-05-8	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester	Thiophanate-methyl
U097	79-44-7	Carbamic chloride, dimethyl-	Dimethylcarbamoyl chloride
U114	<sup>1</sup> 111-54-6	Carbamodithioic acid, 1,2-ethanediybis-, salts & esters	Ethylenebisdithiocarbamic acid
U062	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	Diallate
U389	2303-17-5	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester	Triallate
U387	52888-80-9	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester	Prosulfocarb
U279	63-25-2	Carbaryl	Same
U372	10605-21-7	Carbendazim	Same
U367	1563-38-8	Carbofuran phenol	Same
U215	6533-73-9	Carbonic acid, dithallium(1+) salt	Thallium (I) carbonate
U033	353-50-4	Carbonic difluoride	Carbon oxyfluoride
U156	79-22-1	Carbonochloridic acid, methyl ester (I,T)	Methyl chlorocarbonate
U033	353-50-4	Carbon oxyfluoride (R,T)	Same
U211	56-23-5	Carbon tetrachloride	Same
U034	75-87-6	Chloral	Same
U035	305-03-3	Chlorambucil	Same
U036	57-74-9	Chlordane, alpha & gamma isomers	Same
U026	494-03-1	Chlornaphazin	Same
U037	108-90-7	Chlorobenzene	Same
U038	510-15-6	Chlorobenzilate	Same
U039	59-50-7	p-Chloro-m-cresol	Same
U042	110-75-8	2-Chloroethyl vinyl ether	Same
U044	67-66-3	Chloroform	Same
U046	107-30-2	Chloromethyl methyl ether	Same
U047	91-58-7	beta-Chloronaphthalene	Same
U048	95-57-8	o-Chlorophenol	Same
U049	3165-93-3	4-Chloro-o-toluidine, hydrochloride	Same
U032	13765-19-0	Chromic acid H <sub>2</sub> CrO <sub>4</sub> , calcium salt	Calcium chromate
U050	218-01-9	Chrysene	Same
U051		Creosote	Same
U052	1319-77-3	Cresol (Cresylic acid)	Same

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U053	4170-30-3	Crotonaldehyde	Same
U055	98-82-8	Cumene (I)	Same
U246	506-68-3	Cyanogen bromide (CN)Br	Cyanogen bromide
U197	106-51-4	2,5-Cyclohexadiene-1,4-dione	1,4-Benzoquinone
U056	110-82-7	Cyclohexane (I)	Same
U129	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-	Lindane
U057	108-94-1	Cyclohexanone (I)	Same
U130	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	Hexachlorocyclopentadiene
U058	50-18-0	Cyclophosphamide	Same
U240	<sup>1</sup> 94-75-7	2,4-D, salts & esters	Same
U059	20830-81-3	Daunomycin	Same
U060	72-54-8	DDD	Same
U061	50-29-3	DDT	Same
U062	2303-16-4	Diallate	Same
U063	53-70-3	Dibenz[a,h]anthracene	Same
U064	189-55-9	Dibenzo[a,i]pyrene	Same
U066	96-12-8	1,2-Dibromo-3-chloropropane	Same
U069	84-74-2	Diethyl phthalate	Same
U070	95-50-1	o-Dichlorobenzene	Same
U071	541-73-1	m-Dichlorobenzene	Same
U072	106-46-7	p-Dichlorobenzene	Same
U073	91-94-1	3,3'-Dichlorobenzidine	Same
U074	764-41-0	1,4-Dichloro-2-butene (I,T)	Same
U075	75-71-8	Dichlorodifluoromethane	Same
U078	75-35-4	1,1-Dichloroethylene	Same
U079	156-60-5	1,2-Dichloroethylene	Same
U025	111-44-4	Dichloroethyl ether	Same
U027	108-60-1	Dichloroisopropyl ether	Same
U024	111-91-1	Dichloromethoxy ethane	Same
U081	120-83-2	2,4-Dichlorophenol	Same
U082	87-65-0	2,6-Dichlorophenol	Same
U084	542-75-6	1,3-Dichloropropene	Same
U085	1464-53-5	1,2,3,4-Diepoxybutane (I,T)	Same
U395	5952-26-1	Diethylene glycol, dicarbamate	Same
U108	123-91-1	1,4-Diethyleneoxide	Same

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U028	117-81-7	Diethylhexyl phthalate	Same
U086	1615-80-1	N,N'-Diethylhydrazine	Same
U087	3288-58-2	O,O-Diethyl S-methyl dithiophosphate	Same
U088	84-66-2	Diethyl phthalate	Same
U089	56-53-1	Diethylstilbesterol	Same
U090	94-58-6	Dihydrosafrole	Same
U091	119-90-4	3,3'-Dimethoxybenzidine	Same
U092	124-40-3	Dimethylamine (I)	Same
U093	60-11-7	p-Dimethylaminoazobenzene	Same
U094	57-97-6	7,12-Dimethylbenz[a]anthracene	Same
U095	119-93-7	3,3'-Dimethylbenzidine	Same
U096	80-15-9	alpha,alpha-Dimethylbenzylhydroperoxide (R)	Cumene hydroperoxide
U097	79-44-7	Dimethylcarbamoyl chloride	Same
U098	57-14-7	1,1-Dimethylhydrazine	Same
U099	540-73-8	1,2-Dimethylhydrazine	Same
U101	105-67-9	2,4-Dimethylphenol	Same
U102	131-11-3	Dimethyl phthalate	Same
U103	77-78-1	Dimethyl sulfate	Same
U105	121-14-2	2,4-Dinitrotoluene	Same
U106	606-20-2	2,6-Dinitrotoluene	Same
U107	117-84-0	D1-n-octyl phthalate	Same
U108	123-91-1	1,4-Dioxane	Same
U109	122-66-7	1,2-Diphenylhydrazine	Same
U110	142-84-7	Dipropylamine (I)	Same
U111	621-64-7	D1-n-propylnitrosamine	Same
U041	106-89-8	Epichlorohydrin	Same
U001	75-07-0	Ethanal (I)	Acetaldehyde
U404	121-44-8	Ethanamine, N,N-diethyl-	Triethylamine
U174	55-18-5	Ethanamine, N-ethyl-N-nitroso-	N-Nitrosodiethylamine
U155	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-	Methapyrilene
U067	106-93-4	Ethane, 1,2-dibromo-	Ethylene dibromide
U076	75-34-3	Ethane, 1,1-dichloro-	1,1-Dichloroethane
U077	107-06-2	Ethane, 1,2-dichloro-	1,2-Dichloroethane
U131	67-72-1	Ethane, hexachloro-	Hexachloroethane



Hazardous waste No	Chemical abstracts No	Substance	Common Name
U024	111-91-1	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	Dichloromethoxy ethane
U117	60-29-7	Ethane, 1,1'-oxybis-(I)	Ethyl ether
U025	111-44-4	Ethane, 1,1'-oxybis[2-chloro-	Dichloroethyl ether
U184	76-01-7	Ethane, pentachloro-	Pentachloroethane
U208	630-20-6	Ethane, 1,1,1,2-tetrachloro-	1,1,1,2-Tetrachloroethane
U209	79-34-5	Ethane, 1,1,2,2-tetrachloro-	1,1,2,2-Tetrachloroethane
U218	62-55-5	Ethanethioamide	Thioacetamide
U226	71-55-6	Ethane, 1,1,1-trichloro-	1,1,1-Trichloroethane
U227	79-00-5	Ethane, 1,1,2-trichloro-	1,1,2-Trichloroethane
U410	59669-26-0	Ethanimidothioic acid, N,N'-[thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester	Thiodicarb
U394	30558-43-1	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester	A2213
U359	110-80-5	Ethanol, 2-ethoxy-	Ethylene glycol monoethyl ether
U173	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-	N-Nitrosodiethanolamine
U395	5952-26-1	Ethanol, 2,2'-oxybis-, dicarbamate	Diethylene glycol, dicarbamate
U004	98-86-2	Ethanone, 1-phenyl-	Acetophenone
U043	75-01-4	Ethene, chloro-	Vinyl chloride
U042	110-75-8	Ethene, (2-chloroethoxy)-	2-Chloroethyl vinyl ether
U078	75-35-4	Ethene, 1,1-dichloro-	1,1-Dichloroethylene
U079	156-60-5	Ethene, 1,2-dichloro-, (E)-	1,2-Dichloroethylene
U210	127-18-4	Ethene, tetrachloro-	Tetrachloroethylene
U228	79-01-6	Ethene, trichloro-	Trichloroethylene
U112	141-78-6	Ethyl acetate (I)	Same
U113	140-88-5	Ethyl acrylate (I)	Same
U238	51-79-6	Ethyl carbamate (urethane)	Same
U117	60-29-7	Ethyl ether (I)	Same
U114	<sup>1</sup> 111-54-6	Ethylenebisdithiocarbamic acid, salts & esters	Same
U067	106-93-4	Ethylene dibromide	Same
U077	107-06-2	Ethylene dichloride	Same
U359	110-80-5	Ethylene glycol monoethyl ether	Same
U115	75-21-8	Ethylene oxide (I,T)	Same
U116	96-45-7	Ethylenethiourea	Same
U076	75-34-3	Ethylidene dichloride	Same
U118	97-63-2	Ethyl methacrylate	Same

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U119	62-50-0	Ethyl methanesulfonate	Same
U120	206-44-0	Fluoranthene	Same
U122	50-00-0	Formaldehyde	Same
U123	64-18-6	Formic acid (C,T)	Same
U124	110-00-9	Furan (I)	Same
U125	98-01-1	2-Furancarboxaldehyde (I)	Furfural
U147	108-31-6	2,5-Furandione	Maleic anhydride
U213	109-99-9	Furan, tetrahydro-(I)	Tetrahydrofuran
U125	98-01-1	Furfural (I)	Same
U124	110-00-9	Furfuran (I)	Same
U206	18883-66-4	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-, D-	Streptozotocin
U206	18883-66-4	D-Glucose, 2-deoxy-2-[[[(methylnitrosoamino)- carbonyl]amino]-	Streptozotocin
U126	765-34-4	Glycidylaldehyde	Same
U163	70-25-7	Guanidine, N-methyl-N'-nitro-N-nitroso-	MNNG
U127	118-74-1	Hexachlorobenzene	Same
U128	87-68-3	Hexachlorobutadiene	Same
U130	77-47-4	Hexachlorocyclopentadiene	Same
U131	67-72-1	Hexachloroethane	Same
U132	70-30-4	Hexachlorophene	Same
U243	1888-71-7	Hexachloropropene	Same
U133	302-01-2	Hydrazine (R,T)	Same
U086	1615-80-1	Hydrazine, 1,2-diethyl-	N,N-Diethylhydrazine
U098	57-14-7	Hydrazine, 1,1-dimethyl-	1,1-Dimethylhydrazine
U099	540-73-8	Hydrazine, 1,2-dimethyl-	1,2-Dimethylhydrazine
U109	122-66-7	Hydrazine, 1,2-diphenyl-	1,2-Diphenylhydrazine
U134	7664-39-3	Hydrofluoric acid (C,T)	Same
U134	7664-39-3	Hydrogen fluoride (C,T)	Hydrofluoric acid
U135	7783-06-4	Hydrogen sulfide	Same
U135	7783-06-4	Hydrogen sulfide H <sub>2</sub> S	Same
U096	80-15-9	Hydroperoxide, 1-methyl-1-phenylethyl- (R)	Cumene hydroperoxide
U116	96-45-7	2-Imidazolidinethione	Ethylene thiourea
U137	193-39-5	Indeno[1,2,3-cd]pyrene	Same
U190	85-44-9	1,3-Isobenzofurandione	Phthalic anhydride
U140	78-83-1	Isobutyl alcohol (I,T)	Same

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U141	120-58-1	Isosafrole	Same
U142	143-50-0	Kepone	Same
U143	303-34-4	Lasiocarpine	Same
U144	301-04-2	Lead acetate	Same
U146	1335-32-6	Lead, bis(acetato-O)tetrahydroxytri-	Lead subacetate
U145	7446-27-7	Lead phosphate	Same
U146	1335-32-6	Lead subacetate	Same
U129	58-89-9	Lindane	Same
U163	70-25-7	MNNG	Same
U147	108-31-6	Maleic anhydride	Same
U148	123-33-1	Maleic hydrazide	Same
U149	109-77-3	Malononitrile	Same
U150	148-82-3	Melphalan	Same
U151	7439-97-6	Mercury	Same
U152	126-98-7	Methacrylonitrile (I, T)	Same
U092	124-40-3	Methanamine, N-methyl- (I)	Dimethylamine
U029	74-83-9	Methane, bromo-	Methyl bromide
U045	74-87-3	Methane, chloro- (I, T)	Methyl chloride
U046	107-30-2	Methane, chloromethoxy-	Chloromethyl methyl ether
U068	74-95-3	Methane, dibromo-	Dibromomethane
U080	75-09-2	Methane, dichloro-	Dichloromethane
U075	75-71-8	Methane, dichlorodifluoro-	Dichlorodifluoromethane
U138	74-88-4	Methane, iodo-	Iodomethane
U119	62-50-0	Methanesulfonic acid, ethyl ester	Ethyl methane sulfonate
U211	56-23-5	Methane, tetrachloro-	Carbon tetrachloride
U153	74-93-1	Methanethiol (I, T)	Methyl mercaptan
U225	75-25-2	Methane, tribromo-	Tribromomethane
U044	67-66-3	Methane, trichloro-	Chloroform
U121	75-69-4	Methane, trichlorofluoro-	Trichlorofluoromethane
U036	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	Chlordane
U154	67-56-1	Methanol (I)	Same
U155	91-80-5	Methapyrilene	Same
U142	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5a,5b,6-decachlorooctahydro-	Chlordecone

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U247	72-43-5	Methoxychlor	Same
U154	67-56-1	Methyl alcohol (I)	Methanol
U029	74-83-9	Methyl bromide	Same
U186	504-60-9	1-Methylbutadiene (I)	1,3-Pentadiene
U045	74-87-3	Methyl chloride (I,T)	Same
U156	79-22-1	Methyl chlorocarbonate (I,T)	Same
U226	71-55-6	Methyl chloroform	1,1,1-Trichloroethane
U157	56-49-5	3-Methylcholanthrene	Same
U158	101-14-4	4,4'-Methylenebis(2-chloroaniline)	Same
U068	74-95-3	Methylene bromide	Dibromomethane
U080	75-09-2	Methylene chloride	Same
U159	78-93-3	Methyl ethyl ketone (MEK) (I,T)	Same
U160	1338-23-4	Methyl ethyl ketone peroxide (R,T)	Same
U138	74-88-4	Methyl iodide	Same
U161	108-10-1	Methyl isobutyl ketone (I)	Same
U162	80-62-6	Methyl methacrylate (I,T)	Same
U161	108-10-1	4-Methyl-2-pentanone (I)	Methyl isobutyl ketone
U164	56-04-2	Methylthiouracil	Same
U010	50-07-7	Mitomycin C	Same
U059	20830-81-3	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxohexopyranosyl]oxy]-7,8,9,10 tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	Daunomycin
U167	134-32-7	1-Naphthalenamine	Same
U168	91-59-8	2-Naphthalenamine	Same
U026	494-03-1	Naphthalenamine, N,N'-bis(2-chloroethyl)-	Chlornaphazine
U165	91-20-3	Naphthalene	Same
U047	91-58-7	Naphthalene, 2-chloro-	2-Chloronaphthalene
U166	130-15-4	1,4-Naphthalenedione	1,4-Naphthoquinone
U236	72-57-1	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis(azo)bis[5-amino-4-hydroxy]-, tetrasodium salt	
U279	63-25-2	1-Naphthalenol, methylcarbamate	Trypan blue
U166	130-15-4	1,4-Naphthoquinone	Carbaryl
U167	134-32-7	alpha-Naphthylamine	Same
U168	91-59-8	beta-Naphthylamine	Same
U217	10102-45-1	Nitric acid, thallium(1+) salt	Thallous nitrate

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U169	98-95-3	Nitrobenzene (I,T)	Same
U170	100-02-7	p-Nitrophenol	Same
U171	79-46-9	2-Nitropropane (I,T)	Same
U172	924-16-3	N-Nitrosodi-n-butylamine	N,N-Dibutylnitrosoamine
U173	1116-54-7	N-Nitrosodiethanolamine	Same
U174	55-18-5	N-Nitrosodiethylamine	Same
U176	759-73-9	N-Nitroso-N-ethylurea	Same
U177	684-93-5	N-Nitroso-N-methylurea	Same
U178	615-53-2	N-Nitroso-N-methylurethane	Same
U179	100-75-4	N-Nitrosopiperidine	Same
U180	930-55-2	N-Nitrosopyrrolidine	Same
U181	99-55-8	5-Nitro-o-toluidine	Same
U193	1120-71-4	1,2-Oxathiolane, 2,2-dioxide	1,3-Propane sultone
U058	50-18-0	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide	Cyclophosphamide
U115	75-21-8	Oxirane (I,T)	Ethylene oxide
U126	765-34-4	Oxiranecarboxyaldehyde	Glycidaldehyde
U041	106-89-8	Oxirane, (chloromethyl)-	Epichlorohydrin
U182	123-63-7	Paraldehyde	Same
U183	608-93-5	Pentachlorobenzene	Same
U184	76-01-7	Pentachloroethane	Same
U185	82-68-8	Pentachloronitrobenzene (PCNB)	Same
See F027	87-86-5	Pentachlorophenol	Same
U161	108-10-1	Pentanol, 4-methyl-	Methyl isobutyl ketone
U186	504-60-9	1,3-Pentadiene (I)	Same
U187	62-44-2	Phenacetin	Same
U188	108-95-2	Phenol	Same
U048	95-57-8	Phenol, 2-chloro-	o-chlorophenol
U039	59-50-7	Phenol, 4-chloro-3-methyl-	p-chloro-m-cresol
U081	120-83-2	Phenol, 2,4-dichloro-	2,4-Dichlorophenol
U082	87-65-0	Phenol, 2,6-dichloro-	2,6-Dichlorophenol
U089	56-53-1	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-	Diethylstilbestrol
U101	105-67-9	Phenol, 2,4-dimethyl-	2,4-Dimethylphenol
U052	1319-77-3	Phenol, methyl-	Cresol (cresylic acid)
U132	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	Hexachlorophene

Hazardous waste No	Chemical abstracts No	Substance	Common Name
U411	114-26-1	Phenol, 2-(1-methylethoxy)-,methylcarbamate	Propoxur
U170	100-02-7	Phenol, 4-nitro-	p-Nitrophenol
See F027	87-86-5	Phenol, pentachloro-	Pentachlorophenol
See F027	58-90-2	Phenol, 2,3,4,6-tetrachloro-	2,3,4,6-Tetrachlorophenol
See F027	95-95-4	Phenol, 2,4,5-trichloro-	2,4,5-Trichlorophenol
See F027	88-06-2	Phenol, 2,4,6-trichloro-	2,4,6-Trichlorophenol
U150	148-82-3	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-	Melphalan
U145	7446-27-7	Phosphoric acid, lead(2+) salt (2 3)	Lead phosphate
U087	3288-58-2	Phosphorodithioic acid, O,O-diethyl S-methyl ester	O,O-Diethyl S-methyl dithiophosphate
U189	1314-80-3	Phosphorus sulfide (R)	Phosphorus pentasulfide
U190	85-44-9	Phthalic anhydride	Same
U191	109-06-8	2-Picoline	Same
U179	100-75-4	Piperidine, 1-nitroso-	N-Nitrosopiperidine
U192	23950-58-5	Pronamide	Same
U194	107-10-8	1-Propanamine (I,T)	n-proylamine
U111	621-64-7	1-Propanamine, N-nitroso-N-propyl-	Di-n-propylnitrosamine
U110	142-84-7	1-Propanamine, N-propyl- (I)	Dipropylamine
U066	96-12-8	Propane, 1,2-dibromo-3-chloro-	1,2-Dibromo-3-chloropropane
U083	78-87-5	Propane, 1,2-dichloro-	Propylene dichloride
U149	109-77-3	Propanedinitrile	Malononitrile
U171	79-46-9	Propane, 2-nitro- (I,T)	2-Nitropropane
U027	108-60-1	Propane, 2,2'-oxybis[2-chloro-	Dichloroisopropyl ether
U193	1120-71-4	1,3-Propane sultone	Same
See F027	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	2,4,5-TP
U235	126-72-7	1-Propanol, 2,3-dibromo-, phosphate (3 1)	Tris(2,3-dibromopropyl) phosphate
U140	78-83-1	1-Propanol, 2-methyl- (I,T)	Isobutyl alcohol
U002	67-64-1	2-Propanone (I)	Acetone
U007	79-06-1	2-Propenamide	Acrylamide
U084	542-75-6	1-Propene, 1,3-dichloro-	1,3-Dichloropropene
U243	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	Hexachloropropene
U009	107-13-1	2-Propenenitrile	Acrylonitrile
U152	126-98-7	2-Propenenitrile, 2-methyl- (I,T)	Methacrylonitrile
U008	79-10-7	2-Propenoic acid (I)	Acrylic acid

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Hazardous waste No	Chemical abstracts No	Substance	Common Name
U113	140-88-5	2-Propenoic acid, ethyl ester (I)	Ethyl acrylate
U118	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	Ethyl methacrylate
U162	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester (I,T)	Methyl methacrylate
U373	122-42-9	Propham	Same
U411	114-26-1	Propoxur	Same
U194	107-10-8	n-Propylamine (I,T)	Same
U083	78-87-5	Propylene dichloride	Same
U387	52888-80-9	Prosulfocarb	Same
U148	123-33-1	3,6-Pyridazinedione, 1,2-dihydro-	Maleic hydrazide
U196	110-86-1	Pyridine	Same
U191	109-06-8	Pyridine, 2-methyl-	2-Picoline
U237	66-75-1	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	Uracil mustard
U164	56-04-2	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	Methylthiouracil
U180	930-55-2	Pyrrolidine, 1-nitroso-	n-Nitrosopyrrolidine
U200	50-55-5	Reserpine	Same
U201	108-46-3	Resorcinol	Same
U202	81-07-2	Saccharin, & salts	Same
U203	94-59-7	Safrole	Same
U204	7783-00-8	Selenious acid	Selenium dioxide
U204	7783-00-8	Selenium dioxide	Same
U205	7488-56-4	Selenium sulfide	Same
U205	7488-56-4	Selenium sulfide SeS <sub>2</sub> (R,T)	Selenium (IV) disulfide
U015	115-02-6	L-Serine, diazoacetate (ester)	Azaserine
See F027	93-72-1	Silvex (2,4,5-TP)	Same
U206	18883-66-4	Streptozotocin	Same
U103	77-78-1	Sulfuric acid, dimethyl ester	Dimethyl sulfate
U189	1314-80-3	Sulfur phosphide (R)	Phosphorus pentasulfide

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Hazardous waste No	Chemical abstracts No	Substance	Common Name
See F027	93-76-5	2,4,5-T	Same
U207	95-94-3	1,2,4,5-Tetrachlorobenzene	Same
U208	630-20-6	1,1,1,2-Tetrachloroethane	Same
U209	79-34-5	1,1,2,2-Tetrachloroethane	Same
U210	127-18-4	Tetrachloroethylene	Same
See F027	58-90-2	2,3,4,6-Tetrachlorophenol	Same
U213	109-99-9	Tetrahydrofuran (I)	Same
U214	563-68-8	Thallium(I) acetate	Same
U215	6533-73-9	Thallium(I) carbonate	Same
U216	7791-12-0	Thallium(I) chloride	Same
U216	7791-12-0	Thallium chloride TlCl	Thallous chloride
U217	10102-45-1	Thallium(I) nitrate	Thallous nitrate
U218	62-55-5	Thioacetamide	Same
U410	59669-26-0	Thiodicarb	Same
U153	74-93-1	Thiomethanol (I,T)	Methyl mercaptan
U244	137-26-8	Thioperoxydicarbonic diamide [(H <sub>2</sub> N)C(S)] <sub>2</sub> S <sub>2</sub> , tetramethyl-	Thiram
U409	23564-05-8	Thiophanate-methyl	Same
U219	62-56-6	Thiourea	Same
U244	137-26-8	Thiram	Same
U220	108-88-3	Toluene	Same
U221	25376-45-8	Toluenediamine	Same
U223	26471-62-5	Toluene diisocyanate (R,T)	Same
U328	95-53-4	o-Toluidine	Same
U353	106-49-0	p-Toluidine	Same
U222	636-21-5	o-Toluidine hydrochloride	Same
U389	2303-17-5	Triallate	Same
U011	61-82-5	1H-1,2,4-Triazol-3-amine	Amitrole
U227	79-00-5	1,1,2-Trichloroethane	Same



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Hazardous waste No	Chemical abstracts No	Substance	Common Name
U228	79-01-6	Trichloroethylene	Same
U121	75-69-4	Trichloromonofluoromethane	Same
See F027	95-95-4	2,4,5-Trichlorophenol	Same
See F027	88-06-2	2,4,6-Trichlorophenol	Same
U404	121-44-8	Triethylamine	Same
U234	99-35-4	1,3,5-Trinitrobenzene (R,T)	Same
U182	123-63-7	1,3,5-Trioxane, 2,4,6-trimethyl-	Paraldehyde
U235	126-72-7	Tris(2,3-dibromopropyl) phosphate	Same
U236	72-57-1	Trypan blue	Same
U237	66-75-1	Uracil mustard	Same
U176	759-73-9	Urea, N-ethyl-N-nitroso-	N-Nitroso-N-ethylurea
U177	684-93-5	Urea, N-methyl-N-nitroso-	N-Nitroso-N-methylurea
U043	75-01-4	Vinyl chloride	Same
U248	<sup>1</sup> 81-81-2	Warfarin, & salts, when present at concentrations of 0.3% or less	Same
U239	1330-20-7	Xylene (I)	Same
U200	50-55-5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-	Reserpine
U249	1314-84-7	Zinc phosphide Zn <sub>3</sub> P <sub>2</sub> , when present at concentrations of 10% or less	Zinc phosphide

FOOTNOTE <sup>1</sup>CAS Number given for parent compound only

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**[RESERVED]**

**PAGE 116 IS RESERVED**

**§ 261 35 Deletion of Certain Hazardous Waste Codes Following Equipment Cleaning and Replacement**

(a) Wastes from wood preserving processes at plants that do not resume or initiate use of chlorophenolic preservatives will not meet the listing definition of F032 once the generator has met all of the requirements of paragraphs (b) and (c) of this section. These wastes may, however, continue to meet another hazardous waste listing description or may exhibit one or more of the hazardous waste characteristics.

(b) Generators must either clean or replace all process equipment that may have come in contact with chlorophenolic formulations or constituents thereof, including, but not limited to, treatment cylinders, sumps, tanks, piping systems, drip pads, fork lifts, and trams in a manner which minimizes or eliminates the escape of hazardous waste or waste constituents, leachate, contaminated drippage, or hazardous waste decomposition products to the ground water, surface water, or atmosphere.

(1) Generators shall do one of the following:

(i) Prepare and follow an equipment cleaning plan and clean equipment in accordance with this section,

(ii) Prepare and follow an equipment replacement plan and replace equipment in accordance with this section, or

(iii) Document cleaning and replacement in accordance with this section, carried out after termination of use of chlorophenolic preservations.

(2) Cleaning Requirements

(i) Prepare and sign a written equipment cleaning plan that describes:

(A) The equipment to be cleaned,

(B) How the equipment will be cleaned,

(C) The solvent to be used in cleaning,

(D) How solvent rinses will be tested, and

(E) How cleaning residues will be disposed.

(ii) Equipment must be cleaned as follows:

(A) Remove all visible residues from process equipment,

(B) Rinse process equipment with an appropriate solvent until dioxins and dibenzofurans are not detected in the final solvent rinse

(iii) Analytical requirements

(A) Rinses must be tested in accordance with SW-846, Method 8290

(B) "Not detected" means at or below the lower method calibration limit (MCL) in Method 8290, Table 1

(iv) The generator must manage all residues from the cleaning process as F032 waste

(3) Replacement requirements

(i) Prepare and sign a written equipment replacement plan that describes

(A) The equipment to be replaced,

(B) How the equipment will be replaced, and

(C) How the equipment will be disposed

(ii) The generator must manage the discarded equipment as F032 waste

(4) Documentation requirements

(i) Document that previous equipment cleaning and/or replacement was performed in accordance with this section and occurred after cessation of use of chlorophenolic preservatives

(c) The generator must maintain the following records documenting the cleaning and replacement as part of the facilities operating record

(1) The name and address of the facility,

(2) Formulations previously used and the date on which their use ceased in each process at the plant,

(3) Formulations currently used in each process at the plant,

(4) The equipment cleaning or replacement plan,

(5) The name and address of any persons who conducted the cleaning and replacement,

(6) The dates on which the cleaning and replacement were accomplished,

(7) The dates of sampling and testing,

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- (8) A description of the sample handling and preparation techniques, including techniques used for extraction, containerization, preservation, and chain-of-custody of the samples,
- (9) A description of the tests performed, the date the tests were performed, and the results of the tests,
- (10) The name and model numbers of the instrument(s) used in performing the tests
- (11) QA/QC documentation, and
- (12) The following statement signed by the generator or his/her authorized representative

I certify under penalty of law that all process equipment required to be cleaned or replaced under § 261 35 of these regulations was cleaned or replaced as represented in the equipment cleaning and replacement plan and accompanying documentation. I am aware that there are significant penalties for providing false information, including the possibility of fine or imprisonment.

**INSERT APPENDIX 261 HERE**  
**(Pages 120 - 146)**

## **Statement of Basis and Purpose**

### **Part 261 - Identification and Listing of Hazardous Waste**

#### **Purpose**

The fundamental purpose of the Part 261 regulations which are promulgated pursuant to C R S 1973, 25-15-302(2) is to identify those wastes, which, because of the public health and environmental hazards that they may pose in transportation, treatment, storage or disposal, are subject to regulation as hazardous wastes

Additionally, regulations concerning the identification and listing of hazardous waste are a necessary and required component in conducting a hazardous waste management program, the State intends to obtain EPA authorization for a hazardous waste management program pursuant to C R S 1973, 25-15-302. Such full state authorization to conduct the hazardous waste regulatory program can be granted only upon the determination that the State program is equivalent to that of the EPA

#### **BASIS**

These regulations are based upon a "cradle-to-grave" system of regulation of hazardous waste. Under this system, hazardous waste is tracked and regulated from the point of generation through storage and transportation to the point of treatment and/or disposal. In this manner, a major portion of the hazardous waste generated in the State is regulated and accounted for, thereby minimizing the potential for public health and environmental problems resulting from improper management, handling, transportation and disposal of these wastes. The great potential for public health and environmental problems, including hazards associated with fire, explosion, direct contact, and air, surface water and groundwater contamination resulting from inadequate management of hazardous wastes has been documented at hundreds of sites throughout the nation and has spurred the development of hazardous waste regulations pursuant to the Resource Conservation and Recovery Act (RCRA) of 1976, Public Law 94-580.

These regulations are based, for the most part, on those developed by the EPA under Subtitle C of RCRA. This was done for the reasons discussed below. Because the Federal hazardous waste regulations are comprehensive and technically complex, it was felt that adopting the Federal format and amending specific sections to the needs of the State, as opposed to developing State regulations "from scratch", would save substantial amounts of time and financial resources. Also, it was felt that the process of determination of initial program equivalency would be greatly simplified through adoption of the Federal format. Further, because the Federal regulations are presently subject to frequent amendment, adoption of the Federal format greatly enhances maintaining equivalency of the State regulations to the Federal program.

As stated above, much of the scientific basis for these regulations was developed in the course of EPA research and investigations over a period of several years. Therefore, all

information utilized by EPA in developing and proposing these regulations, including that

referenced in the Federal Register Volume 45, Number 98, May 19, 1980 p 33066 et seq is hereby incorporated in this statement by reference Pursuant to amendments made to this part 261 effective April 30, 1993, the information contained in the following Federal Registers is incorporated by reference 55 FR 18726, 56 FR 27300-27330, 55 FR 46354-46397, 56 FR 21955-21960, 55 FR 5340-5342, 55 FR 18496-18506, 54 FR 50968, 53 FR 43881-43884, 53 FR 43878-43881, and 56 FR 19951

The basis for these regulations was further developed through a series of twelve public meetings at which comments were received from interested parties Accordingly, certain changes from the Federal regulations have been incorporated in these regulations where it was deemed advisable as a result of public comment and study of the issues, in order to tailor the regulations more to Colorado's needs Such departures from the approach taken in the Federal regulations are discussed in this document under the pertinent topics

### The Regulations

These regulations define the terms "solid waste" and "hazardous waste," and identify those wastes which are excluded from these regulations This is necessary in order to characterize the universe of materials which are subject to regulation

Under the definition of hazardous waste, § 261.3, the phrase "if it has no commercial use or value" has been added as a restriction on the EPA definition The basis for this action was to achieve consistency with the definition of hazardous waste under C R S 1973, 25-15-101(9)(a) Also, under the Exclusions Section - materials which are not solid wastes, the following additions were listed in order to provide consistency with C R S 1973, 25-15-101(9)(a) -inert materials used for construction fill or top soil placement or changing contour for agriculture or mining purposes, -any materials or waste exempted or not regulated as hazardous waste under the Federal Act

Subpart B of these regulations sets forth criteria used to identify characteristics and to list particular hazardous wastes Since there are hazardous wastes which meet these criteria, but which are not listed under Subpart D nor meet the characteristics under Subpart C, the regulations provide that the Department may identify such a waste as hazardous for purposes of these regulations This provision is necessary in order to protect public health and the environment by ensuring that all hazardous wastes are adequately managed under these regulations Hazardous wastes under Subpart C may be subject to regulation based on four characteristics defined in the regulations These characteristics are ignitability, corrosivity, reactivity and (EP) toxicity This allows a waste to be characterized as hazardous without specifically listing it by name or waste stream Additionally, Subpart D lists particular hazardous waste, both by specific industrial process waste streams and as discarded commercial products The discarded commercial products list is further subdivided into toxic and acutely hazardous wastes Additionally, these regulations establish special, reduced management requirements for hazardous waste produced by small quantity generators Small quantity generators are defined as those who generate less than 1,000 kilograms of hazardous waste per month, or less than 1 kilogram of acutely toxic waste within one month Under this small quantity generator provision, those who treat or

dispose of their own waste on-site must have a permit under these regulations or written Departmental approval This requirement was added by the State in order to clarify the



responsibilities of small quantity generators, and to ensure that such activities are conducted in a manner which does not threaten public health or the environment. If hazardous waste is disposed off-site, the waste must be delivered to an interim status or permitted facility, or a state-approved facility.

These regulations also include special requirements for hazardous waste which is used, re-used, recycled or reclaimed. These wastes are subject to reduced regulatory requirements in order to encourage re-use activities. This provision may conflict with C.R.S. 1973, 25-15-101(9)(a) which provides that waste which has commercial use or value is not considered hazardous. EPA is also in the process of revising these re-use regulations and this issue may need to be readdressed in the future.

**Statement of Basis and Purpose  
Rule-making Hearing of April 20, 1993**

**Hazardous Waste Management System, Identification  
and Listing of Hazardous Waste**

**Basis and Purpose**

These amendments to 6 CCR 1007-3, Part 261 are made pursuant to the authority granted to the Hazardous Waste Commission in section 25-15-302(2), C R S

**Toxicity Characteristic Revisions**

The Environmental Protection Agency adopted an amendment which exempted from the toxicity characteristic rules certain used chlorofluorocarbon refrigerants which exhibit the toxicity characteristic and which are reclaimed for use. These amendments provide state equivalency with the regulatory requirements of the Environmental Protection Agency.

The amendments also remove the quality assurance requirement found in Method 1311, Toxicity Characteristic Leaching Procedure for correcting measured values for analytical bias. However, this rule retains appropriate quality assurance provisions, including that matrix spike recoveries be calculated and that the method of standard additions be employed as the quantitation method for metallic contaminants when appropriate as specified in the method. These amendments also provide state equivalency with the regulatory requirements of the Environmental Protection Act.

This Basis and Purpose incorporates by reference the preamble language for the Environmental Protection Agency regulations published in the Federal Register at 55 FR 5910-5915, February 13, 1991, and at 55 FR 55114, November 24, 1992.

**Exclusion of Certain Wastes**

The Environmental Protection Agency amended the federal regulations to exclude from the definition of solid waste those coke by-product residues that are recycled by being returned to coke ovens as a feedstock to produce coke, returned to the tar recovery process as a feedstock to produce coal tar, or mixed with coal tar prior to coal tar refining or sale. The Agency also excluded the similarly-situated hazardous waste K087 when recycled in those ways. These amendments mirror the Agency's amendments.

The promulgation of these amendments provide state equivalency with the regulatory requirements of the Environmental Protection Agency.

This Basis and Purpose incorporates by reference the preamble language for this amendment published in the Federal Register at 57 FR 27880-27888 on June 22, 1992.

2/25/03

Mr Chuck Hoelzel  
Contract Technical Representative, Subcontract Number KH001076OZ  
Kaiser-Hill Company, L L C  
Rocky Flats Environmental Technology Site  
P O Box 464  
Golden, CO 80402-0464

Dear Mr Hoelzel,

On February 21, 2003, Canberra Mobile Laboratory Services (CMLS) received three samples from UBC 371, to be counted as one object using On-Site Radiological Screening by Gamma Spectrometry, RC10C, Batch No 0302214453. The RIN for this batch is 03F0201. The samples were requested to be counted as DOT Radscreen samples. A 24 Hour Results Only package, containing the items specified in contract No KH001076OZ dated February 1, 2000 and updated July 1, 2001 has been requested for these samples.

The samples were counted using ISOCS, and had QA/QC appropriate to this type of analysis. Results of the analysis are attached in the batch report narrative.

The samples were counted for 3600 seconds. This count time was sufficient to meet the detection limit requirements of the contract.

For your convenience, please find attached a sample cross-reference listing of Project sample identification numbers and the corresponding CMLS laboratory ID designator.

If you have any questions please do not hesitate to call at 303-966-7946.

Sincerely,

Larry Umbaugh  
Director, Canberra Analytical Laboratory Services

**COVER PAGE**  
**RC10C, On-Site Radiological Screening by Gamma Spectrometry**

**Gamma Spectrometry**

**PROJECT SAMPLE IDENTIFICATION  
CROSS-REFERENCE  
TO CMLS SAMPLE LABORATORY IDs**

**BATCH 0302214453**

**Subcontract KH001076OZ**

<b>COC NUMBER</b>	<b>PROJECT SAMPLE ID NUMBER</b>	<b>SITE SAMPLE NUMBER(S)</b>	<b>CMLS SAMPLE ID NUMBER(S)</b>	<b>OBJECT NUMBER(S) CMLS</b>	<b>LINE ITEM CODE(S)</b>
03F0201#001	03F0201-001 001	03F1194-001 001, 002 001, 005 001	CMLS-2430	D0100075	RC10C101

**Calibration Package ID** Object individually modeled using ISOCS

**Comments**

Samples were counted in T130A using BEGe Detector LI009

**Report Prepared By**

Cathy Neal

Signature

Date 2/25/03

**Reviewer Statement**

"I have reviewed the contents of this report and have determined that all data is complete"

Sean Stanfield

Signature

Date 2/25/03

Technical Supervisor

Title

**Certification Statement**

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature"

Larry Umbaugh

Signature

Date 2/25/03

Director, Canberra Analytical Laboratory Services

Title

## **CHAIN OF CUSTODY**

REFS				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				COC: 03F0201#001		Page 1 of 1	
Sample(s) ENGELHARD, SAM		(Structure)		Contact/Requester NEES, CHRIS		Telephone No. 300-590-0849					
BIN 03F0201		Sampling Origin URC 371		Logbook No. CHAD-423		Purchase Order/Charge Code GR0300000					
Project Title 300-3		Method of Sample HAND DELIVER		Initial COC (if any) 03F1194002		Ice Class No. URS #6		Temp. T-emp.			
To (Lab) Canberra Mobile Lab Service		Method of Delivery HAND DELIVER		Initial COC (if any) 03F1194002		Box of Labeling/Alt Box No. N/A					
Protocol						FPL		CHAD BLAKE-01/22/02			
<b>POSSIBLE SAMPLE HAZARDS/RESIDUES</b> Are acid preserved samples DOT hazardous per 49 CFR Part 133 Table II? YES NO Are other known hazardous substances present? YES NO ** **				<input type="checkbox"/> SCREENING REQUIRED 03F0201-001 = OBJECT(1) = 03F1194-001 001, -002,001, and -005,001		SPECIAL INSTRUCTIONS Read Time					
<b>Bottle No</b> 03F0201 -001,001	<b>Customer Number</b> DOT RAD SCREEN	<b>Matrix</b> OBJECT	<b>Date/Time</b>	<b>Location</b> DOT RAD SCREEN	<b>Container (aka type)</b> 1-SAMPL E (AM241, U235, U238)	<b>Sample Analysis</b> [Field-Filled] LIC (Method Title) [LAT]/[Parameter List] MC10C101 (TAS GAMA SCORER - MCN STD INOC (1-1..)) [24157N]		<b>Preservative, Packing</b> None			
<b>Relinquished By</b> <i>CM/Blake-01</i>		<b>Date/Time</b> <i>21/2/03 1330</i>		<b>Received By</b> <i>Shan</i>		<b>Date/Time</b> <i>21/2/03 1330</i>		<b>Relinquished By</b>		<b>Date/Time</b>	
<b>Relinquished By</b>		<b>Date/Time</b>		<b>Received By</b>		<b>Date/Time</b>		<b>Relinquished By</b>		<b>Date/Time</b>	
<b>FINAL SAMPLE DISPOSITION</b>				<b>Disposal Method (e.g. returned to customer, disposed of per lab procedure, used in analytical process)</b>				<b>Disposed By</b>			
								<b>Date/Time COC printed: 02/20/03 17:20 (Version coc_r20.rpt)</b>			

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## **CMLS Sample Data Package Narrative**

**Contract Number: KH001076OZ**

**RIN Number: 03F0201    Batch Number: 0302214453**

**Date: 2/25/03**

**Data Package Type:            DOT Radscreen            Level: 24hrR**

### **Analytical Summary**

**Location of Analysis** RFETS, T130A

**Measurement Type** Object, by ISOCS measurement

**Statement of Work Number** Module RC10C

**Detector(s) Used** BEGe, ISOCS-characterized detector, LI009

**Software Used for analysis.** Canberra Industries ProCount 2000 version 1.2 using

ISOCS Version 4.0, and Genie 2K version 2.0

**CMLS Procedures Used for Analysis** CMLS-019, CMLS-20, CMLS-022, and CMLS-023

**MDA Requirements** Per contract

**Were all MDA requirements met in the analysis**   X   YES           NO           N/A

**If NO, list the specific MDA that was not met**

**Resolution performed.** N/A

**Efficiency Curve used** Dual

**CMLS Radionuclide Library Used for Analysis** Secular11 + Cs-137 NLB

**Source of Library** The TABLE OF RADIOACTIVE ISOTOPES by Browne & Firestone, with low abundance Pu and Am peaks taken from "A Reevaluation of the Gamma Ray Energies and Absolute Branching Intensities of U-238, Pu-238, -239, -240, -241, and Am-241," Gunnink, R, Evans, J E, and Prindle, A L, Lawrence Livermore Laboratories, UCRL-52139, October 11, 1976

### **Unidentified Peaks**

**All unidentified peaks were dispositioned**

### **Total Propagated Error**

**Total propagated error is determined from the counting error and the systematic error, when available. The systematic error is determined by comparing the ratios of the reported activities of Th-234 and Pa-234m or other pairs of nuclides with established ratios or the ratio of the activities of different energy lines of a nuclide. Systematic error is not calculated when no pairs of nuclides with established ratios are present in the sample or the calculated activity for the pair overlap each other plus or minus the calculated error term.**

**If the results of the sample indicate U-238 to U-235 as an enriched uranium then the U-238/U-234 equilibrium assumption may not be applicable**

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# **GAMMA SPECTROSCOPY**

## **ANALYTICAL RESULTS**



**Quality Control Summary**

Daily QC check source(s) counted?   X   YES        NO

Parameters within specification?   X   YES        NO

Action taken if not within specification

Recount within specification?        YES        NO   X   N/A

Do all QC samples meet the Data Quality Objectives?   X   YES        NO

If No, list specific QC sample ID and the DQO that was not met

QA Background Count Performed?   X   YES        NO

If No, Explanation

**QA Criteria**

Upper and lower boundaries have been established for peak centroid warning and control limits for selected energy lines  
Upper and lower boundary limits for peak centroids are set as absolutes from the calibration centroids  
FWHM and activity parameters are controlled at 2 and 3 sigma limits for selected energies that cover the full range of energies in the spectrum The limits for the QA parameters are derived from a running mean of the QA data collected since the initial calibration of the detector for the N-sigma parameters

Nonconformance & Operational Variances.

None

Discussion

None

MDA Calculation - Currie Method as specified in the Genie 2000 Customized Tools Manual, Appendix B, Basic Algorithms

**Canberra Project Manager/Manager's Designee Comments**

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature "

*"I certify that this electronic image, and all hardcopies produced from this image, accurately represents the data and is in compliance with the RFETS specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager or the Manager's designee "*

Larry Umbaugh  
Signature

Director, Canberra Analytical Laboratory Services  
Title

2/25/03  
Date

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**QC Background and QC Performance Check Data were performed as required and were acceptable. Hardcopy printouts are on file at the CMLS office and are available upon request.**

Analysis Results Header                      2/24/2003      1 07 18 PM                      Page 1

\*\*\*\*\*  
\*\*\*\*\*                      G A M M A   S P E C T R U M   A N A L Y S I S                      \*\*\*\*\*  
\*\* C a n b e r r a   M o b i l e   L a b o r a t o r y   S e r v i c e s \*\*  
\*\*\*\*\*

Report Generated On                                      2/24/2003      1 07 18 PM

RIN Number    03F0201  
Analytical Batch ID                                      0302214453  
Line Item Code    RC10C101

Filename    S \GENIE2K\CAMFILES\LI009(D)\ORIG\D0100075 CNF

Sample Number    03F0201  
Lab Sample Number    CMLS-2430  
Sample Receipt Date    2/21/2003  
Sample Volume Received    7 42E+002 grams

Result Identifier    N/A

Peak Locate Threshold    2 50  
Peak Locate Range (in channels)    100 - 8192  
Peak Area Range (in channels)    100 - 8192  
Identification Energy Tolerance    1 000 keV

Sample (Final Aliquot Size)    7 424E+002 grams  
Sample Quantity Error    0 000E+000  
Systematic Error Applied    0 000E+000

Sample Taken On    2/20/2003      1 15 00 PM  
Acquisition Started    2/24/2003      9 57 32 AM

Count Time    3600 0 seconds  
Real Time    3600 8 seconds  
Dead Time    0 02 %

Energy Calibration Used Done On    12/27/02  
Energy =                      -0 349    +                      0 250\*ch    +                      -1 33E-008\*ch^2    +                      8 37E-013\*ch^3

Corrections Applied  
None

Efficiency Calibration Used Done On    2/24/03  
Efficiency Geometry ID    03F0201-001 001

Analyzed By    Phil Sanderson    Date    2/24/03  
Reviewed By    Sheri Chambers    Date    2/24/03

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Sample and QC Sample Results Summary 2/24/03 1 07 18 PM Page 2

\*\*\*\*\*  
\*\*\*\*\* Sample and QC Sample Results Summary \*\*\*\*\*  
\*\*\*\*\*

Site Sample ID 03F0201  
Analytical Batch ID 0302214453  
Sample Type (Result Identifier) D01  
Lab Sample Number CMLS-2430  
Geometry ID 03F0201-001 001

Filename S \GENIE2K\CAMFILES\LI009(D)\ORIG\D0100075 CNF

Detector Name BEGE

MDA = Curie method as specified in Genie-2000 Customization Tools Manual  
Appendix B, Basic Algorithms

Analyte	Activity (pCi/grams )	2-Sigma Uncertainty (pCi/grams )	MDA (pCi/grams )
K-40n	9 12E+000	1 01E+000	6 44E-001
CS-137n	0 00E+000	0 00E+000	7 33E-002
TL-208n	1 84E-001	4 37E-002	5 38E-002
PO-210in	0 00E+000	0 00E+000	6 01E+003
BI-212n	0 00E+000	0 00E+000	1 15E+000
PB-212n	5 10E-001	5 42E-002	5 85E-002
BI-214n	3 50E-001	8 37E-002	1 17E-001
PB-214n	2 63E-001	6 53E-002	9 75E-002
RA-226n	8 37E-001	4 48E-001	7 21E-001
AC-228n	4 46E-001	1 34E-001	2 31E-001
TH-230n	0 00E+000	0 00E+000	8 44E+000
Th-231n	1 21E-001	1 08E-001	3 71E-001
PA-234Mn	0 00E+000	0 00E+000	8 52E+000
PA-234n	0 00E+000	0 00E+000	9 59E-002
U-235	0 00E+000	0 00E+000	4 46E-002
U238/234	4 65E-001	2 42E-001	3 87E-001
AM-241	0 00E+000	0 00E+000	1 01E-001

1 - If Po-210 is detected in the spectrum This peak may be the result of the  
interaction of Pb-206(n,n') which also produces a prompt gamma at 803 keV

n - Non-contractual Nuclide

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